



NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA

THESIS

**ASSESSING POSSIBLE IMPROVEMENTS IN NATO'S
NON-STRATEGIC NUCLEAR DETERRENCE FORCES**

by

Jeffrey R. Frost

December 2017

Thesis Advisor:
Second Reader:

David S. Yost
Mikhail Tsypkin

Approved for public release. Distribution is unlimited.

THIS PAGE INTENTIONALLY LEFT BLANK

REPORT DOCUMENTATION PAGE			<i>Form Approved OMB No. 0704-0188</i>	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington, DC 20503.				
1. AGENCY USE ONLY (2. REPORT DATE December 2017		3. REPORT TYPE AND DATES COVERED Master's thesis
4. TITLE AND SUBTITLE ASSESSING POSSIBLE IMPROVEMENTS IN NATO'S NON-STRATEGIC NUCLEAR DETERRENCE FORCES			5. FUNDING NUMBERS	
6. AUTHOR Jeffrey R. Frost				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Postgraduate School Monterey, CA 93943-5000			8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING /MONITORING AGENCY NAME(S) AND ADDRESS(ES) N/A			10. SPONSORING / MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government. IRB number ____N/A____.				
12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release. Distribution is unlimited			12b. DISTRIBUTION CODE	
13. ABSTRACT (maximum 200 words) <p>Given Moscow's revanchist foreign policy, its willingness to use military force to achieve its goals, and its annexation of Crimea in 2014, the strategic threat Russia presents to NATO's Allies in the Baltic region has become acute. The Alliance must find a means to deter Moscow from attempting a similar action in the former Soviet Baltic republics that are now NATO member states. This thesis has identified regional nuclear deterrence as the best means of addressing this threat, and it has answered the question: "How, and to what extent, would the addition of U.S. sea- and ground-based non-strategic nuclear weapons strengthen the Alliance's deterrence and defense posture in Europe?" Through a qualitative analysis of NATO's nuclear deterrence posture in Europe in the light of new challenges, including Russian air defenses, this thesis has found that the addition of a nuclear-capable cruise missile such as the Nuclear Tomahawk Land Attack Missile (TLAM-N), deployed on surface ships, would be an effective short-term solution to this problem and would be consistent with the Navy's "distributed lethality" concept for surface ships. Moreover, to enhance the Alliance's long-term regional deterrent, a short-range ground-based dual-capable ballistic missile could usefully complement the TLAM-N</p>				
14. SUBJECT TERMS NATO, Baltic, Latvia, Lithuania, Estonia, Poland, Russia, Crimea, Ukraine, nuclear weapons, Cruise missile, Tomahawk Land Attack Missile, Ballistic Missile, deterrence, Nuclear Planning Group, B-61, Suppression of Enemy Air Defenses.			15. NUMBER OF PAGES 81	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT UU	

NSN 7540-01-280-5500

Standard Form 298 (Rev. 2-89)
Prescribed by ANSI Std. Z39-18

THIS PAGE INTENTIONALLY LEFT BLANK

Approved for public release. Distribution is unlimited.

**ASSESSING POSSIBLE IMPROVEMENTS IN NATO'S NON-STRATEGIC
NUCLEAR DETERRENCE FORCES**

Jeffrey Robert Frost
Lieutenant Commander, United States Navy
B.S., University of Maine, 2005

Submitted in partial fulfillment of the
requirements for the degree of

**MASTER OF ARTS IN SECURITY STUDIES
(EUROPE AND EURASIA)**

from the

**NAVAL POSTGRADUATE SCHOOL
December 2017**

Approved by: David S. Yost
Thesis Advisor

Mikhail Tsypkin
Second Reader

Mohammed Hafez
Chair, Department of National Security Affairs

THIS PAGE INTENTIONALLY LEFT BLANK

ABSTRACT

Given Moscow's revanchist foreign policy, its willingness to use military force to achieve its goals, and its annexation of Crimea in 2014, the strategic threat Russia presents to NATO's Allies in the Baltic region has become acute. The Alliance must find a means to deter Moscow from attempting a similar action in the former Soviet Baltic republics that are now NATO member states. This thesis has identified regional nuclear deterrence as the best means of addressing this threat, and it has answered the question: "How, and to what extent, would the addition of U.S. sea- and ground-based non-strategic nuclear weapons strengthen the Alliance's deterrence and defense posture in Europe?" Through a qualitative analysis of NATO's nuclear deterrence posture in Europe in the light of new challenges, including Russian air defenses, this thesis has found that the addition of a nuclear-capable cruise missile such as the Nuclear Tomahawk Land Attack Missile (TLAM-N), deployed on surface ships, would be an effective short-term solution to this problem and would be consistent with the Navy's "distributed lethality" concept for surface ships. Moreover, to enhance the Alliance's long-term regional deterrent, a short-range ground-based dual-capable ballistic missile could usefully complement the TLAM-N.

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

I.	INTRODUCTION.....	1
A.	MAJOR RESEARCH QUESTION.....	1
B.	SIGNIFICANCE OF THE RESEARCH QUESTION.....	1
C.	LITERATURE REVIEW	3
D.	POTENTIAL EXPLANATIONS AND HYPOTHESES	8
E.	RESEARCH DESIGN	11
F.	THESIS OVERVIEW	11
II.	AN ANALYSIS OF U.S. EXTENDED NUCLEAR DETERRENCE FOR NATO.....	13
A.	INTRODUCTION.....	13
B.	THE EXTENDED NUCLEAR DETERRENCE CONCEPT.....	13
C.	THE COLD WAR.....	16
D.	POST-SOVIET NATO NUCLEAR POLICY (1991–2009)	18
E.	2010 STRATEGIC CONCEPT TO THE DDPR	21
F.	RUSSIAN AGGRESSION	25
G.	CONCLUSION	27
III.	MODIFYING THE U.S. EXTENDED NUCLEAR DETERRENCE POSTURE IN EUROPE.....	29
A.	INTRODUCTION.....	29
B.	THESIS	30
C.	RUSSIA’S TURN AGAINST THE WEST.....	30
D.	GEORGIA 2008	32
E.	THE “NEW LOOK” REFORMS.....	33
F.	UKRAINE.....	35
G.	THE RUSSIAN THREAT IN THE BALTIC REGION	36
H.	THE RAND STUDY	37
I.	UPGRADING NATO’S EXTENDED NUCLEAR DETERRENT	42
J.	THE BEST OPTIONS	47
K.	TLAM-N	49
L.	SRBM	52
IV.	CONCLUSION	55
	LIST OF REFERENCES	59
	INITIAL DISTRIBUTION LIST	67

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF ACRONYMS AND ABBREVIATIONS

DCA	Dual Capable Aircraft
DDPR	Deterrence and Defense Posture Review
DSMAC	Digital Scene Matching Area Correlation
GLCM	Ground Launched Cruise Missile
GPS	Global Positioning System
HIMARS	High Mobility Artillery Rocket System
INS	Inertial Navigation System
JASSM	Joint Air-to-Surface Standoff Missile
SEAD	Suppression of Enemy Air Defenses
SRBM	Short-Range Ballistic Missile
MLRS	Multiple Launch Rocket System
NATO	North Atlantic Treaty Organization
NIPP	National Institute for Public Policy
NPG	Nuclear Planning Group
NSNWs	Non-Strategic Nuclear Weapons
PNIs	Presidential Nuclear Initiatives
SLBM	Submarine-Launched Ballistic Missile
SLCM	Sea-Launched Cruise Missile
TERCOM	Terrain Contour Matching
TLAM	Tomahawk Land Attack Missile
TLAM-N	Nuclear-armed Tomahawk Land Attack Missile

THIS PAGE INTENTIONALLY LEFT BLANK

ACKNOWLEDGMENTS

First and foremost, I wish to thank Dr. David Yost for his patience and enthusiasm in assisting me with completing this work. His guidance and knowledge have been invaluable. I also wish to acknowledge the significant influence Dr. Mikhail Tsypkin, Dr. James Moltz, Dr. Ryan Gingeras, Dr. Donald Abenheim, and Dr. John Tullius have had on my studies at the Naval Postgraduate School. These esteemed professors and educators have greatly increased my knowledge and sharpened my analytical abilities. I am truly in their debt.

Finally, I would like to thank my wife, Debora, and my children, Benjamin and Miryam, for their continuous love and support—without them I would not have been able to realize this significant professional achievement.

THIS PAGE INTENTIONALLY LEFT BLANK

I. INTRODUCTION

A. MAJOR RESEARCH QUESTION

How, and to what extent, would the addition of U.S. sea- and ground-based non-strategic nuclear weapons strengthen the Alliance's deterrence and defense posture in Europe? Specifically, this thesis investigates the potential utility for deterrence and assurance of the nuclear-armed Tomahawk Land Attack Missile (TLAM-N), deployed on surface combatants in Europe, and the possible value of a dual-capable short-range (less than 500km), land-based, mobile, ballistic missile system to enhance NATO's security in Europe.

B. SIGNIFICANCE OF THE RESEARCH QUESTION

Currently, the only U.S. nuclear weapon based in Europe is the B-61 gravity bomb. The B-61 could be delivered by U.S. and Allied fighter-bomber aircraft reportedly based in western Europe and Turkey. These aircraft are referred to as Dual-Capable Aircraft (DCA) because they possess both nuclear and conventional weapons delivery capabilities. The B-61 is regarded as a non-strategic nuclear weapon when deployed with DCA and counted as a "strategic" weapon when deployed with B-52 and B-2 bombers. The term "strategic" has come to mean that the weapon is counted under SALT or START treaty limits. Nuclear weapons not subject to these treaties are classified as "non-strategic," and the B-61 weapons deployed by the United States in NATO Europe are included in this category.

While the B-61 is a critical element of U.S. extended nuclear deterrence in Europe, aircraft attempting to employ it rapidly as a crisis contingency—for instance, in response to a Russian invasion of the Baltic states or other NATO Allies—could face extreme difficulty penetrating Russian air defenses. This difficulty could stem from anticipated initial Russian air supremacy along the Russian frontier with Estonia and Latvia and around the Kaliningrad Oblast. Additionally, reported deficiencies in U.S. and NATO SEAD (Suppression of Enemy Air Defenses) capability could further complicate

the employment of the B-61 by U.S. and Allied DCA and U.S. strategic bombers in any situation involving Russian air defenses.¹

Given this potential operational limitation and Russia's awareness of the fact, the B-61 may, in some circumstances, have limited deterrence value in preventing Russian aggression against NATO Allies, notably the Baltic states. In the Baltic region, the scarcity of NATO conventional forces, the proximity to Russia's border, and the lack of strategic geographic depth in the Baltic states give Russian military planners an acute advantage. Essentially, the Baltic states have a scarcity of national and Allied conventional deterrence and defense capabilities. This circumstance, combined with the states' close proximity to Russia, and the aforementioned Allied SEAD deficiency, limits NATO's ability to deter Russian aggression in the region. Given Russia's recent aggressive use of military power as a policy tool in Georgia, Ukraine, and Syria, the situation in the Baltic region deserves serious consideration.

While Russia's increasingly aggressive tendencies, notably its 2014 invasion of Ukraine and illegal annexation of Crimea, have been a topic of open discussion among the Allies since at least the September 2014 NATO summit in Wales,² concrete measures to establish a deterrent against Russian intervention in the Baltic region have only recently been taken. NATO heads of state and government met in Warsaw in July 2016 to address, among other issues, the Russian threat. They declared, "We have decided to establish an enhanced forward presence in Estonia, Latvia, Lithuania and Poland to unambiguously demonstrate, as part of our overall posture, Allies' solidarity, determination, and ability to act by triggering an immediate Allied response to any aggression."³ This force is designed to be a tripwire: it is a representative force composed of many NATO powers whose presence is designed to deter a Russian invasion by

¹ David A. Shlapak and Michael Johnson, *Reinforcing Deterrence on NATO's Eastern Flank: Wargaming the Defense of the Baltics* (Santa Monica, CA: RAND Cooperation, 2016), 9. doi:10.7249/RR1253.

² Wales Summit Declaration: Issued by the Heads of State and Government participating in the meeting of the North Atlantic Council in Wales. NATO, 05 Sep 2014 (last updated 26 Sep 2016), Paragraphs 16–31, http://www.nato.int/cps/en/natohq/official_texts_112964.htm.

³ Warsaw Summit Communiqué: Issued by the Heads of State and Government participating in the meeting of the North Atlantic Council in Warsaw 8–9 July 2016. NATO, 09 JUL 2016 (last updated: 03 Aug 2016), Paragraph 40. http://www.nato.int/cps/en/natohq/official_texts_133169.htm#piracy.

demonstrating the political-military commitment of other NATO members, three of which possess nuclear weapons.⁴

Furthermore, this measure is intended to shore up the resolve of the Baltic NATO member states by demonstrating NATO's commitment to defend their borders. These measures alone may not be adequate to dissuade Russia from undertaking aggression in a region that was part of the Soviet Union until 1991. The Baltic states have historically sought independence from Russia. In conjunction with the small conventional tripwire force constituted by the Alliance's Enhanced Forward Presence, improvements in NATO's nuclear deterrence posture may offer an effective means to restrain Russian behavior in this critical region.

This study examines the potential benefits of diversifying the types of U.S. non-strategic nuclear weapons based in Europe in order to achieve an increased political-military deterrence effect on Russia, and an enhanced level of assurance for the Baltic NATO Allies and the Alliance as a whole. While the potential capabilities improvements analyzed in this thesis could enhance the U.S. deterrence posture in other regions, this thesis focuses on NATO and Europe. This study assesses the prospects for increasing the diplomatic and military effectiveness of the Alliance's deterrence and defense posture via the addition of TLM-N and a dual-capable SRBM capability deployed in the Baltic area. This thesis investigates the hypothesis that the addition of these weapons could enhance security on NATO's eastern frontier by both deterring Russian aggression and assuring NATO Allies. Furthermore, a diverse set of non-strategic nuclear weapons could contribute to the achievement of a more effective deterrence posture without requiring a large deployment of conventional forces.

C. LITERATURE REVIEW

In their paper entitled *Reinforcing Deterrence on NATO's Eastern Flank*, David A. Shlapak and Michael W. Johnson evaluated the results from a series of RAND Corporation war games conducted from mid-2014 to early 2015 that modeled a

⁴ Warsaw Summit Communiqué, NATO, Paragraph 40.

hypothetical invasion of the NATO Baltic states by Russia.⁵ These scenarios demonstrated that with its current force posture in the Baltic region, NATO is unable to adequately defend its Baltic Allies from a Russian invasion.⁶ Shlapak and Johnson concluded that deploying a large conventional force with heavy armor formations, augmented with air defense and artillery, would be the only effective way to deter Russia from undertaking such an endeavor. This RAND study briefly addressed the role of nuclear weapons in deterring Russia; however, the authors hastily concluded that any use of nuclear weapons would inevitably transform a future Russia-NATO conflict into a strategic nuclear exchange between Russia and the United States, and consequently they ruled out nuclear deterrence as a viable option because they judged the willingness of the United States to “trade New York for Riga” as unrealistic.⁷ The RAND authors did not, however, examine the possibility of tailoring NATO’s regional nuclear deterrence posture in such a way as to achieve an effective deterrent to Russian aggression. In fact, only a few works, such as Matthew Kroenig’s report *Towards a More Flexible NATO Nuclear Posture*,⁸ examine the possibility of addressing a resurgent Russian threat to NATO in this manner.

This thesis analyzes the possible deterrence value of adding sea-based nuclear-armed cruise missiles and ground-based short-range dual-capable ballistic missiles to the inventory of U.S. non-strategic nuclear weapons deployed in Europe, which currently consists of only air-delivered B-61 gravity bombs. This thesis therefore addresses a little-studied topic of growing importance.

Literature on the nuclear-armed Tomahawk Land Attack Missile (TLAM-N), a U.S. sea-launched cruise missile that was capable of being deployed on ships and submarines, is scattered and sparse. Several sources describe the weapon’s physical

⁵ Shlapak and Johnson. *Reinforcing Deterrence*, 1.

⁶ Ibid.

⁷ Ibid., 7.

⁸ Matthew Kroenig, *Toward a More Flexible NATO Nuclear Posture: Developing a Response to a Russian Nuclear De-Escalation Strike*, Atlantic Council: Brent Scowcroft Center on International Security (November 2016), 6, https://issuu.com/atlanticcouncil/docs/toward_a_more_flexible_nato_nuclear.

properties, including its reported warhead yield, and give range estimates.⁹ Moreover, an analysis in 1985 assessed the operational and deterrence utility of TLAM-N in the European theater.¹⁰ This paper reviewed the advantages that sea-launched cruise missiles could offer NATO in the European geostrategic environment, and its findings in this regard are still valid despite the differences between the Soviet and Russian threats.

Furthermore, several government reports have addressed the TLAM-N. The Secretary of Defense's 2008 Task Force on DOD Nuclear Weapons Management pointed out the unique political advantages of the TLAM-N by highlighting its assurance value to allies.¹¹ However, the authoritative 2010 Nuclear Posture Review (NPR) Report called for the retirement of the TLAM-N, labeling it "redundant."¹² While these primary sources include arguments for and against maintaining the TLAM-N's capabilities, and assess the decision to retire the weapon, they do not analyze in any depth how these missiles could be involved in defense planning, and they fail to consider in any detail how these weapons could be used politically in their deterrence and assurance roles.

The addition of a sea-launched cruise missile (SLCM) would in fact offer several potential advantages over other types of NSNW delivery methods. A cruise missile has the advantage of being able to penetrate an adversary's air defenses without endangering a human pilot.¹³ Therefore, planners can accept a higher risk of mission failure, which

⁹ Carlo Kopp, "Tomahawk Cruise Missile Variants: BGM/RGM/AGM-109 Tomahawk/TASM/TLAM/GCLM/MRASM," *Technical Report APA-TR-2005-0702*. Last accessed February 14, 2014. <http://www.ausairpower.net/Tomahawk-Subtypes.html>; "Tomahawk Variants," Missile Threat, Last accessed on February 27, 2014. <http://missilethreat.com/missiles/tomahawk-variants/?country=united-states#united-states>.

¹⁰ J. E. Dougherty and R. J. Hanks. *The European Political Environment and NATO Maritime Strategy: The Future Role of Naval Forces in the Forward Defense of Western Europe. Volume 1*. Institute for Foreign Policy Analysis Inc. (Cambridge MA: 10 Jul 1985). Access Number: ADA159284. <http://www.dtic.mil/get-tr-doc/pdf?AD=ADA159284>.

¹¹ Secretary of Defense Task Force on DOD Nuclear Weapons Management, *Phase II: Review of the DOD Nuclear Mission Report* (Washington, DC: Department of Defense, December 2008), vi, Last Accessed 31 January 2017, <https://www.defense.gov/Portals/1/Documents/pubs/PhaseIIReportFinal.pdf>.

¹² Department of Defense. *Nuclear Posture Review Report* (Washington, DC: Department of Defense, April 2010), 28. Last Accessed 31JAN17. https://www.defense.gov/Portals/1/features/defenseReviews/NPR/2010_Nuclear_Posture_Review_Report.pdf.

¹³ Stephen A. Garrett, *NATO Deterrence and Defense After the INF Treaty* (Monterey California: Naval Postgraduate School, 1989), 53-4, <http://hdl.handle.net/10945/29008>.

would not be possible when using DCA to deliver a B-61 gravity bomb. Additionally, a SLCM such as the TLAM-N has advantages over other cruise missiles in that the platform that carries the weapon could be based near an Ally's territory. Kroenig holds that pre-positioning nuclear weapons with Allies in Europe could give NATO a degree of "escalation control" in the event of a future conflict with Russia, because any attempt to flow in forces or strike from bases outside Europe could increase the risk of escalating the conflict to a strategic nuclear exchange.¹⁴ An aircraft based in the United States and armed with nuclear Air-Launched Cruise Missiles (ALCMs), on the other hand, would not share this advantage, because it would have to enter the European theater after a long flight from a base in North America.

Another military advantage offered by a weapon such as the TLAM-N is its natural fit into the U.S. Navy's strategy of "distributed lethality." This strategy envisions de-centralizing strike potential away from the Carrier Strike Group (CSG) and "distributing" it across the surface force to stress an adversary's ability to target a large number of primary threats.¹⁵ A nuclear-armed SLCM, such as the TLAM-N or its future replacement, deployed on a surface combatant operating independently in the Baltic region would dovetail into this concept seamlessly. The United States has recently created such a de-centralized force in Europe by basing four Arleigh Burke Class guided missile destroyers (DDG) in Rota, Spain, specifically to operate independently and provide support to European Allies with Ballistic Missile Defense capability.¹⁶ These ships are already capable of employing the conventional variants of the TLAM, and therefore integrating TLAM-N into their mission set would not be technically impractical.

Apart from the military advantages offered by a nuclear-capable SLCM, this type of weapon would provide a marked political-diplomatic advantage. The TLAM-N has

¹⁴ Kroenig, *Toward a More Flexible NATO Nuclear Posture*, 6.

¹⁵ Thomas Rowden, Peter Gumataotao, and Peter Fanta, "Distributed Lethality," *Proceedings Magazine*, 141, no. 1 (January 2015). Accessed 25 February 2017, <https://www.usni.org/magazines/proceedings/2015-01/distributed-lethality>.

¹⁶ Department of Defense, "Navy Names Forward Deployed Ships to Rota, Spain," U.S. Navy (16 February 2012), Accessed 25 February 2017, http://www.navy.mil/SUBMIT/display.asp?story_id=65393

played a crucial role in assuring Japan, a key U.S. Ally, that the United States would defend it in the event of a Chinese or North Korean attack. The retirement of the TLAM-N, announced in 2010, caused a political problem for the United States, because some experts and officials in Japan expressed concern about the decision to remove the weapon from America's nuclear arsenal. In 2009, James M. Acton called attention to the assurance role that TLAM-N played in establishing credibility for U.S. extended nuclear deterrence for Japan. Although Acton argued against the need to satisfy Japan's desire for the United States to retain the TLAM-N, his work provides evidence that this weapon had a significant assurance value for some Japanese officials and experts.¹⁷ Based on this example, a judgment that TLAM-N could have a similar assurance value for the Baltic Allies is logical and reasonable.

With regard to the proposed re-introduction of a U.S. short-range ballistic missile to NATO's nuclear deterrence posture, only one current source has been found that addresses the utility of a regionally deployed land-based ballistic missile in defending NATO and reinforcing its deterrence posture. According to Brad Roberts, who served as Deputy Assistant Secretary of Defense for Nuclear and Missile Defense Policy from April 2009 to March 2013, "If...Russia deploys INF-range missiles, NATO would be well served by deployment of a small arsenal of conventionally armed ballistic missiles with a range sufficient to strike Russian bases."¹⁸ Roberts further stated that "NATO does not need a symmetric nuclear posture [to deter Russia]. It needs a capacity for limited retaliation."¹⁹ Roberts, however, considers the value of a ballistic missile only in the conventional context and does not continue his analysis to address its potential utility as a dual-capable weapon system that could deliver a non-strategic nuclear warhead to a range of less than 500km—that is, at a range not prohibited by the 1987 Intermediate-Range Nuclear Forces (INF) Treaty.

¹⁷ James M. Acton, "Extended Deterrence and Communicating Resolve," *Strategic Insights*, no. 8 (December 2009): 1.

¹⁸ Brad Roberts, *The Case for U.S. Nuclear Weapons in the 21st Century* (Stanford, CA: Stanford University Press: 2016), 193.

¹⁹ *Ibid.*, 194.

An additional source has been found that outlines the benefit of using a ballistic missile to deliver a precision strike.²⁰ This source—an article by Eric Miller, an analyst at the National Institute for Public Policy (NIPP)—shares Roberts’s assessment that the conventional role of the proposed dual-capable short-range ballistic missile is a valid asset, and useful in the overall effort to deter Russia. Miller, however, does not address the potential benefits of a short-range ballistic missile system; he focuses on possible modifications to intercontinental strategic ballistic missiles for accomplishing global precision strikes.

Historical information related to the last ground-based short-range dual-capable ballistic missile in U.S. service, the Lance missile, is available from the U.S. Army.²¹ Furthermore, Susan Koch has written an authoritative work on the Presidential Nuclear Initiatives (PNIs) that were unilaterally taken by the George H. W. Bush administration in 1991. One of the PNIs was to withdraw Lance from Europe and retire it from service.²²

D. POTENTIAL EXPLANATIONS AND HYPOTHESES

This thesis investigates whether and to what extent diversifying the types of U.S. non-strategic nuclear weapons deployed to Europe could strengthen the NATO Alliance by reinforcing its regional deterrent to a resurgent Russia, and by simultaneously assuring the new Baltic Allies, which are situated precariously on Russia’s frontier, of NATO’s determination to provide for their defense. A revision of the U.S. extended nuclear deterrence mix in Europe is overdue: this is a view espoused by Brad Roberts. According to Roberts, “adaptations to the alliance’s deterrence and defense posture are...needed in light of changes in Russia’s policy and posture, and NATO must [now] reopen the ‘appropriate mix’ question in a different context.”²³ The sole U.S. non-strategic nuclear

²⁰ Eric A. Miller, “Global Strike Capabilities: The Ballistic Missile Option,” *Astropolitics*, 2, no. 1 (January 2004): 1–31. <http://dx.doi.org/10.1080/14777620490444722>.

²¹ AMCOM, “Lance,” U.S. Army Aviation and Missile Life Cycle Management Command, Assessed 02 February 2017, <https://history.redstone.army.mil/miss-lance.html>.

²² Susan J. Koch, *The Presidential Nuclear Initiatives of 1991–1992* (Washington, DC: National Defense University Press, September 2012), 10–11.

²³ Roberts, *Case for U.S. Nuclear Weapons*, 192.

system currently in use, the B-61, is a weapon that traces its origins to the Cold War. Countering the Soviet military's strategy of sending echelon-based massed armored formations surging through the Fulda Gap required a set of tools significantly different from those needed to deter coercion or aggression by post-Soviet Russia.

During the Cold War the NATO Allies maintained a wide variety of non-strategic nuclear weapons, including various ground-based ballistic missiles, nuclear artillery shells, the venerable B-61 gravity bomb, and—prior to the 1987 Intermediate-range Nuclear Forces Treaty (INFT)—Pershing II ballistic missiles and Ground-Launched Cruise Missiles (GLCMs). In September 1991, U.S. President George H. W. Bush reduced the variety and quantity of U.S. non-strategic nuclear weapons deployed in Europe to a comparatively small number of B-61 bombs.²⁴

This action was taken by the Bush administration in the context of a post-German unification NATO preference for longer-range, air-delivered nuclear weapons, and with the anticipation of generating a similar reduction of NSNW by the Soviet Union. The United States was concerned that some of the large numbers of NSNWs under Soviet control in Eastern Europe and in the U.S.S.R. itself might go missing in the radical political change sweeping the Soviet bloc.²⁵ Following the complete collapse of the Soviet Union in December 1991 and in recognition of the reduced threat posed by Russia, the posture based on a limited number of B-61 bombs in Europe was continued by successive U.S. administrations.²⁶

Given the recent, and continuing, tendency of Russia to align itself against NATO and use military force to compromise the sovereignty and territorial integrity of its neighbors, it makes sense for the NATO Allies, including the United States, to reevaluate the Alliance's nuclear deterrence posture with the aim of achieving a more reliable

²⁴ Amy Woolf, *Nonstrategic Nuclear Weapons*, CRS Report No. RL32572 (Washington, DC: Congressional Research Service, 2017), 9-10, 18-19.

²⁵ For a discussion of other factors in President George H. W. Bush's nuclear posture decisions, see George H. W. Bush and Brent Scowcroft, *A World Transformed* (New York: Knopf, 1998), 544-5.

²⁶ David S. Yost, "The U.S. Debate on NATO Nuclear Deterrence," *International Affairs*, no. 84 (2011): 1406-8.

deterrent effect on Russia by reintroducing variety, and possibly quantity, to the U.S. nuclear weapon systems deployed in Europe.

The strategic situation that NATO faces today is vastly different from that when the B-61 first came into service in the 1960s, and supplementing the B-61 with other nuclear weapons systems may be a means to more effectively deter a transformed and resurgent Russia. Moscow today does not command the numbers of troops and quantities of materiel that the Soviet Union and its Warsaw Pact allies did during the height of the Cold War. However, the Russian Federation continues to demonstrate increasingly aggressive behavior, and it is arguably less predictable than was its Soviet predecessor. In fact, with its “New Look” military reforms undertaken in the wake of the 2008 conflict with Georgia, Russia has abandoned the old Soviet-era bloated and inefficient mobilization-centric military paradigm, and it has created new formations and capabilities that enable it to conduct so-called “hybrid war” operations in the post-Soviet space. Ukraine, with the loss of the Crimea and the ongoing combat in the Donbas, has been a victim of Russia’s new political-military tools. Additionally, as a result of these same reforms, Moscow now has a demonstrated capability to conduct expeditionary operations abroad using Russian forces instead of surrogates. The Middle East and the foreign powers involved in the region are learning to deal with a Russia capable of sustaining long-term expeditionary operations in Syria—a foreign policy option that the Soviet Union could only attempt to exercise when supporting proxies.

This thesis assesses possible revisions in current U.S. extended nuclear deterrence policy in Europe that could offer alternatives to either (a) maintaining the status quo, and potentially leaving the Baltic states inadequately defended while hoping to deter Russia with NATO’s small Enhanced Forward Presence (a tripwire force), or (b) meeting the challenge by deploying large numbers of conventional forces to the area.

The proposal to add a ship-based non-strategic nuclear-armed cruise missile, the TLAM-N or an equivalent, and a short-range (less than 500 km) dual-capable land-based ballistic missile system, similar to Lance, to the U.S. extended nuclear deterrent in Europe could supplement the air-delivered B-61, and create a triad of regional nuclear deterrence assets capable of presenting a credible military threat. Diversifying the mix of

NSNW options available to NATO planners in this way would allow for the creation of a functionally superior regional nuclear deterrent to prevent Russian aggression or coercion, and simultaneously provide NATO's newest Allies in the Baltic region a credible assurance of the Alliance's resolve in guaranteeing their independence and territorial integrity.

E. RESEARCH DESIGN

This study presents a qualitative historical analysis, based on primary and secondary sources, including NATO and Allied official documents. Additionally, it is supported by scholarly secondary sources related to Russian foreign policy, NATO policy, nuclear deterrence, Baltic defense, and nuclear and non-nuclear weapon systems. This study stems from a single analysis, the RAND report about war games in 2014–15 related to Baltic defense. Owing to this report, factors are analyzed that pertain to deterring Russian aggression in the Baltic region and providing for nuclear deterrence, particularly regional deterrence. This entire study was conducted within a historical perspective that encompasses both Russian viewpoints and NATO's long history of providing a deterrent, both conventional and nuclear, against Soviet and Russian hostility.

F. THESIS OVERVIEW

This thesis explores options for reinforcing deterrence of a resurgent Russia by diversifying the United States' non-strategic nuclear weapons (NSNW) mix deployed to Europe, so as to prevent possible Russian aggression in the Baltic region. This work is organized into four chapters. Chapter I is an overview of the policy problem under consideration; it underscores the importance of this study, and presents a review of relevant literature related to this topic. Chapter II is a historical analysis of U.S. extended nuclear deterrence in Europe. It examines how the United States employed nuclear weapons in Europe during the Cold War to successfully prevent the Soviet Union from using military force against the NATO Alliance. Furthermore, it examines the current state of the U.S. extended nuclear deterrent in Europe and why it was significantly reduced following the collapse of European Communism. Chapter III examines the fundamental reason that deterring Russia is necessary, showing that Russia has continued

to demonstrate aggressive behavior on its periphery and that it has demonstrated a willingness to further its interests with military force irrespective of the sovereignty and territorial integrity of its neighbors. The strategic situation in the Baltic region is clarified by critically examining an analysis of RAND's 2014–15 war games concerning the region, and the conclusions of the 2016 NATO summit in Warsaw. In this context, regional nuclear deterrence is examined and options for improving NATO's nuclear deterrence posture are considered. Specifically, the possible addition of a nuclear sea-based cruise missile (TLAM-N) is examined as well as the effectiveness of a land-based short-range ballistic missile system with dual conventional and nuclear capability. Chapter IV, the final chapter, summarizes the principal findings of the study.

II. AN ANALYSIS OF U.S. EXTENDED NUCLEAR DETERRENCE FOR NATO

A. INTRODUCTION

Although three NATO member states maintain nuclear weapons capabilities, only the United States shares its nuclear deterrent directly with the Alliance by sponsoring participation in host and delivery responsibilities. The additional nuclear-armed NATO members, France and the United Kingdom, exercise independent control over their arsenals, and only Britain consults about its strategic nuclear weapons in the Alliance's Nuclear Planning Group (NPG). In contrast to Britain, France has a tradition of strict independence in the field of nuclear weapons policy, and Paris has never participated in the NPG. The United States directly involves several non-nuclear-weapon-state NATO Allies in arrangements for the basing and possible employment of non-strategic nuclear weapons. Despite the drastic reductions in the types and numbers of U.S. nuclear weapons deployed in Europe since the end of the Cold War, these arrangements are still critical to the Alliance's cohesion and deterrence capability.

U.S. extended nuclear deterrence for NATO is a critical element of the Alliance's strategy for deterring aggression and defending Europe. Despite the Alliance's limited attention to this capability since the collapse of the Soviet Union in 1991, an irredentist Russia is again calling attention to the value of the Alliance's deterrence posture, including its nuclear dimension. The history of U.S. nuclear deterrence in Europe demonstrates the importance of the NATO Alliance's nuclear deterrence posture in this strategically important region.²⁷

B. THE EXTENDED NUCLEAR DETERRENCE CONCEPT

The United States defends itself and its allies from a potential adversary's "aggression and coercion"²⁸ through the use of deterrence. Deterrence can take many

²⁷ The NATO strategic planning document MC3, published in 1949, formally linked U.S. nuclear (atomic) arms to the defense of NATO. However, the U.S. had implicitly protected its interests in Europe with its monopoly on atomic weapons since the end of World War II.

²⁸ Roberts, *Case for U.S. Nuclear Weapons*, 177.

forms; however, the use of nuclear weapons as a deterrent has represented one of the most prominent means of ensuring security in the post-World War II international system.²⁹ The deliberate U.S. policy of explicitly, or implicitly, threatening the use of U.S. nuclear weapons against a potential aggressor in order to protect the vital interests of American allies and security partners is called “extended nuclear deterrence,” and this practice is often referred to as the “nuclear umbrella for U.S. Allies.”³⁰ Extended nuclear deterrence is distinctly separate from preventing a direct attack on the United States—a policy referred to as “central deterrence.”³¹ The fundamental differences between these two policies are based largely on the United States’ gaining the trust of the allied party and credibility *vis-à-vis* the adversary.

Unlike central nuclear deterrence, whereby the United States has to consider only its own interests in relation to an adversary, extended nuclear deterrence has two distinct audiences: the state posing a threat, and the ally (or allies) under threat. Because of the multilateral aspect of extended nuclear deterrence, this policy has important diplomatic and psychological components that need to be well managed to ensure that the policy achieves its intended purpose. In order to successfully implement such a policy, the United States must effectively convince its allies that its pledge to defend them by waging nuclear war against an aggressor, and possibly risking the American homeland, is credible. Furthermore, the United States must convince any potential adversary that it has a nuclear arsenal capable of inflicting a high level of damage—and the will to employ it—so that the aggressor is deterred from attempting to coerce or threaten America’s allies.³² Therefore, the need to provide a credible solution to a foreign ally’s security dilemma is fundamental to establishing a successful extended nuclear deterrence policy, and this is not accomplished by the possession of nuclear weapons alone.

²⁹ David S. Yost, *NATO’s Balancing Act* (Washington, DC: United States Institute of Peace Press, 2014), 89.

³⁰ Roberts, *Case for U.S. Nuclear Weapons*, 177.

³¹ Thérèse Delpech, *Nuclear Deterrence in the 21st Century: Lessons From the Cold War for a New Era of Strategic Piracy* (RAND: Santa Monica CA. 2012), 30.

³² Roberts, *Case for U.S. Nuclear*, 177–8.

In essence, extended nuclear deterrence comprises a “technical” component that relates to possessing robust nuclear weapons and delivery systems that can deter an adversary, and an “assurance” component that is related to convincing allies that America’s resolve to defend them is credible.³³ Brad Roberts states that the technical aspects associated with deterring a foe are the least complex challenges associated with this policy. It is relatively straightforward to build and deploy an effective nuclear weapon; however, assuring allies that Washington will actually honor its commitment to use these destructive explosives when needed is extremely difficult. Roberts quotes former British Defense Minister Denis Healey to illustrate this fact. In the 1960s, Healey stated, “it only takes five percent credibility of American retaliation to deter the Russians, but ninety-five percent credibility to reassure the Europeans.”³⁴ Given the difficulty of convincing a sovereign nation to entrust its national security to a foreign power, it is not surprising that nuclear assurance has been difficult to achieve.

For example, France did not believe that the American pledge to defend it with nuclear arms was credible. General Charles de Gaulle, the eminent French president and statesman, remarked in 1955, “No one in the world—particularly no one in America—can say if...nuclear weapons would be used to defend Europe.”³⁵ In line with this skeptical view of U.S. extended nuclear deterrence, France developed its own nuclear weapons capability, which the French continue to maintain separate from NATO to this day. The other European NATO ally that developed its own nuclear deterrent is Great Britain, which detonated its first H-bomb in 1957,³⁶ and which has maintained a submarine-based nuclear deterrent capability since 1969.³⁷ However, the United Kingdom, unlike France, participates with the other allies in NATO nuclear weapons

³³ Roberts, *Case for U.S. Nuclear*, 177–8.

³⁴ Healey quoted in Roberts, *Case for U.S. Nuclear*, 178–9.

³⁵ De Gaulle quoted in Delpech, *Nuclear Deterrence in the 21st Century*, 30.

³⁶ Kenneth Hubbard, *Dropping Britain’s First H-Bomb: The Story of Operation Grapple 1957* (South Yorkshire, United Kingdom: Penn and Sword, 2008), 92.

³⁷ “UK Nuclear Deterrence: What You Need to Know,” Ministry of Defence, Last Updated 24 March 2016, Accessed 05 March 2017, <https://www.gov.uk/government/publications/uk-nuclear-deterrence-factsheet/uk-nuclear-deterrence-what-you-need-to-know>.

planning and decision-making as part of the Nuclear Planning Group.³⁸ Despite France and Britain deciding to develop and maintain national nuclear capabilities, the remaining twenty-five non-nuclear-weapon-state members of the NATO Alliance have been content to depend on the United States' pledge to use its nuclear arsenal to ensure their national security.

C. THE COLD WAR

U.S. extended nuclear deterrence for the NATO Allies in Europe was originally oriented toward defending against the coercive actions of the Soviet Union and the Communist bloc. The long-standing importance of nuclear messaging in defending American interests in Europe is demonstrated by the pre-NATO Yugoslav crisis of 1946, and the Berlin crisis of 1948–1949.

In November 1946, a little over a year after the Second World War ended, the United States employed its nuclear capability, on which it had a monopoly at the time, to deter communist Yugoslavia from closing its airspace to American aircraft supporting U.S. and British operations against the communist insurgency in Greece. Yugoslav fighters had shot down an American cargo plane that was transiting Yugoslav airspace en route to Greece with military supplies for Anglo-American forces that were engaged in combatting Greek communists waging a civil war for control of the country. To resolve the problem, President Harry S. Truman ordered five U.S. B-29 bombers flown across Yugoslavia, which resulted in no further attempts by Belgrade to interfere with U.S. aircraft.³⁹ The possible use of U.S. nuclear weapons was implicitly suggested to address Yugoslav aggression; although there likely were no nuclear weapons onboard these aircraft, the B-29 was a recognized symbol of American nuclear dominance. The B-29's role in dropping atomic weapons on Japan during the war sent a clear message to Marshal Tito that forced him to submit to the U.S. demand for unimpeded access to Belgrade's

³⁸ Yost, *NATO's Balancing Act*, 90–1.

³⁹ Delpech, *Nuclear Deterrence in the 21st Century*, 64.

airspace.⁴⁰ Although this incident occurred before the formation of NATO, it was a clear use of nuclear deterrence in supporting vital Allied interests (Anglo-American in this case), and it was a forerunner of extended nuclear deterrence in Europe.

Canada, the United States, and ten European nations signed the North Atlantic Treaty in April 1949 during another geopolitical crisis in Europe that involved the threat of nuclear escalation—the Berlin Crisis. The Soviet Union cut off rail and road access to Berlin on June 24, 1948, in an attempt to coerce Paris, London, and Washington into settling the “German question”; that is, to pressure them to resolve the status of occupied Berlin, and the political alignment of Germany, in Moscow’s favor. The three Western countries with Four Power rights concerning Berlin and Germany (France, the United Kingdom, and the United States) responded with the Berlin Airlift, delivering an average of 13,000 tons of food and supplies daily. In July 1948, the symbolic value of the B-29 was again used to signal American resolve. Three groups of these nuclear-capable bombers were transferred to Europe, sending a message to Stalin. The crisis was eventually resolved in May 1949, in large part because of this application of implicit U.S. nuclear pressure.⁴¹ The use of American nuclear weapons in supporting European Allies eventually evolved into a formal policy of extended nuclear deterrence.

In supporting its policy of extended nuclear deterrence for NATO, the United States would eventually deploy large numbers of nuclear-capable artillery, short- and long-range nuclear-capable missiles, and nuclear gravity bombs to Europe. In the 1980s, at the height of the Cold War, the United States had over 7,000 nuclear weapons on European soil.⁴² As the Soviet Union and the Eastern European communist states began to collapse in the late 1980s, however, these forces underwent a drastic reduction that has had a major, and lasting, impact on American extended nuclear deterrence in Europe.

⁴⁰ J.C. Hopkins and Sheldon A. Goldberg, *The Development of Strategic Air Command, 1946–1986* (Offutt Air Force Base, NE: Office of the Historian, Headquarters, Strategic Air Command, September 1, 1986) 5–6. <https://babel.hathitrust.org/cgi/pt?id=mdp.39015012025121;view=1up;seq=15>

⁴¹ Delpech, *Nuclear Deterrence in the 21st Century*, 64.

⁴² *Ibid.*, 29.

D. POST-SOVIET NATO NUCLEAR POLICY (1991–2009)

In 1991, U.S. President George H. W. Bush took unilateral action in reducing the number of non-strategic nuclear weapons in America's arsenal via a series of initiatives. These became known as the Presidential Nuclear Initiatives (PNIs) and they had two main goals: to elicit similar reductions by the Soviet Union in order to mitigate the possibility that a nuclear weapon might be lost in the political turmoil accompanying the breakup of the communist bloc, and to reduce the financial burden that maintaining these weapons imposed on the American government's budget. On September 27, 1991, President Bush unilaterally announced that "the United States [would] eliminate its entire worldwide inventory of ground-launched short-range theater nuclear weapons...bring home and destroy all of [its] nuclear artillery shells and short-range ballistic missile warhead...and withdraw all tactical nuclear weapons from its surface ships and attack submarines, as well as those nuclear weapons associated with...land-based naval aircraft." He specifically stated that the United States would be "removing all nuclear Tomahawk cruise missiles from U.S. ships and submarines, as well as nuclear bombs aboard aircraft carriers." He emphasized that, "under normal circumstances, our ships will not carry tactical nuclear weapons."⁴³ The PNIs had a significant impact on U.S. extended nuclear deterrence for Europe as these reductions slashed the American nuclear arsenal forward deployed to NATO.⁴⁴ These measures were taken in light of the considerably reduced threat from the Soviet Union during the years immediately preceding its collapse on December 25, 1991, and then from Russia under the leadership of Boris Yeltsin.

President Bush took care, however, to assure the NATO Allies of America's resolve to support the Alliance with its nuclear umbrella. He stated that, "we will, of course, ensure that we preserve an effective air-delivered nuclear capability in

⁴³ George H. W. Bush, "Address to the Nation on Reducing United States and Soviet Nuclear Weapons" (speech, Washington, DC, September 27, 1991), *The American Presidency Project*, <http://www.presidency.ucsb.edu/ws/index.php?pid=20035>.

⁴⁴ Susan J. Koch, *The Presidential Nuclear Initiatives of 1991–1992* (Washington, DC: National Defense University Press, September 2012), 11, http://ndupress.ndu.edu/Portals/68/Documents/casestudies/CSWMD_CaseStudy-5.pdf

Europe...essential to NATO's security."⁴⁵ With these words, President Bush sought to take advantage of an opening in U.S.-Soviet relations to promote regional stability, as he simultaneously left in place capabilities for ensuring the continuation of U.S. extended nuclear deterrence in Europe.

The geopolitical changes that brought about by the PNIs were also reflected in the NATO Nuclear Planning Group's communiqué of October 18, 1991, which stated:

In adapting our nuclear policy to the needs of the 1990s we were guided by the conclusions ... that the Alliance could reduce its reliance on nuclear weapons and in particular those of the shortest ranges. Events since then have confirmed the validity of these conclusions, but allow us to go even further; there is no longer any requirement for nuclear ground-launched short-range ballistic missiles and artillery. In this context, we welcomed President Bush's recent decision, and the reciprocal response by President Gorbachev, to withdraw and destroy the associated nuclear warheads worldwide. We also welcomed the decision to withdraw all tactical nuclear weapons from surface vessels, attack submarines and land-based naval aircraft, and to destroy many of these weapons.⁴⁶

Subsequently, NATO's Strategic Concept of 1991, an important document issued by the heads of state and government of the NATO member states, reflected this reduced threat perception *vis-à-vis* the Soviet Union. It stated, "The monolithic, massive and potentially immediate threat which was the principal concern of the Alliance in its first forty years has disappeared,"⁴⁷ and by the end of the decade the Alliance had completely redefined the threats to its collective security.

The Strategic Concept of 1999 concluded that the post-Soviet threat to the Alliance originated from "local and regional instability" caused by "economic, social and political difficulties, ethnic and religious rivalries, territorial disputes, inadequate or failed efforts at reform, the abuse of human rights, and the dissolution of states [that] can

⁴⁵ Bush, "Reducing United States and Soviet Nuclear Weapons."

⁴⁶ Manfred Wörner, Final Communiqué: The Nuclear Planning Group (NPG) of the North Atlantic Alliance met at Taormina, Italy (17-18 October, 1991), para 4, <http://www.nato.int/docu/comm/49-95/c911018a.htm>.

⁴⁷ NATO, *The Alliance's New Strategic Concept: Agreed by the Heads of State and Government Participating in the Meeting of the North Atlantic Council 07-08 November 1991*, para 5, Last Updated 26 August 2010. http://www.nato.int/cps/sl/natohq/official_texts_23847.htm

lead to local and regional instability.”⁴⁸ With regard to nuclear weapons the Allies stated that “the proliferation of NBC [Nuclear-Biological-Chemical] weapons and their means of delivery” was a critical factor affecting regional stability.⁴⁹ This document did not directly name Russia as a threat, and it further described the post-Soviet security situation as “positive.”⁵⁰ Despite the dissipation of the threat from Russia in the 1990s, the United States did not completely eliminate nuclear weapons from its extended nuclear deterrence posture in Europe; these weapons were useful as a hedge against the possibility of future crises. Moreover, these weapons and the institutions built around them serve important political functions.⁵¹

The United States and its NATO Allies chose to keep some nuclear weapons deployed in Europe. According to Robert S. Norris and Hans M. Kristensen, the Alliance currently maintains an estimated 150 to 200 B-61 nuclear gravity bombs in Europe to support its policy of extended nuclear deterrence for NATO. These weapons are reportedly stored in Belgium, Germany, Italy, the Netherlands, and Turkey, and they are maintained under U.S. control. In the event of a crisis or war, NATO Dual-Capable Aircraft (DCA), which consist of fighter-bombers, such as the F-15E, F-16, and Tornado, and in the future the F-35, could deploy these weapons in defense of the Alliance.⁵² This small air-delivered nuclear deterrent is all that remains of the large, diversified arsenal deployed to restrain the Soviet Union during the Cold War.

The comparatively few B-61 bombs that remain in Europe following the post-Cold War reductions serve a critical political function. They are a “link” to the strategic nuclear forces of the United States, which are the “supreme guarantee of the security of

⁴⁸ NATO, *The Alliance’s Strategic Concept: Approved by the Heads of State and Government Participating in the Meeting of the North Atlantic Council in Washington, DC, 24 April 1999*, para 20, Last Updated 25 June 2009. http://www.nato.int/cps/en/natohq/official_texts_27433.htm.

⁴⁹ Ibid., para 22.

⁵⁰ Ibid., para 12.

⁵¹ Ibid., para 62.

⁵² Robert S. Norris and Hans M. Kristensen, “U.S. Tactical Nuclear Weapons in Europe, 2011,” *Bulletin of the Atomic Scientists*, no. 67 (November 27, 2015), 65–70, DOI: 10.1177/0096340210393931.

the Allies.”⁵³ Therefore, the B-61 nuclear gravity bombs deployed across the NATO Alliance bind the United States to European defense, and without this “link” the assurance the United States needs to uphold the effectiveness of its strategic global alliance system could be placed in jeopardy.

The NATO entity responsible for managing and planning NATO’s use of nuclear weapons for deterrence and crisis management is the aforementioned Nuclear Planning Group (NPG). The NATO Allies (except France) created the NPG in 1966–1967, and it continues to serve as a focal point for formulating NATO’s policy regarding nuclear weapons. The NPG solved many of the contentious issues concerning the role of nuclear weapons that arose at the beginning of the Cold War, and it continues to serve a critical function in integrating U.S. extended nuclear deterrence with NATO. The NPG allows for sharing nuclear “risks and responsibilities” across the Alliance, and it facilitates “multinational decision making and policy implementation” among the NATO members.⁵⁴ It also raises the stature of non-nuclear-weapon states in the Alliance by including them in the nuclear decision making process; this, in turn, lends credibility to Washington’s pledge to defend the bloc with its nuclear arsenal. This function is crucial in binding U.S. strategic interests and nuclear policy to Europe, and the vastly reduced arsenal of non-strategic American nuclear gravity bombs that was retained in Europe after the PNIs reflects the importance of basing U.S. nuclear weapons in Europe in support of U.S. extended nuclear deterrence policy.

E. 2010 STRATEGIC CONCEPT TO THE DDPR

In April 2009, President Barack Obama gave a speech in Prague—a city that was once part of the communist bloc and that, in 2009, was the capital of a new NATO member. This speech, which introduced many of the president’s foreign policy

⁵³ NATO, *Strategic Concept For the Defence and Security of The Members of the North Atlantic Treaty Organization: Adopted by the Heads of State and Government in Lisbon 19–20 November 2010*, para 18, Accessed 5 March 2017, http://www.nato.int/nato_static_fl2014/assets/pdf/pdf_publications/20120214_strategic-concept-2010-eng.pdf.

⁵⁴ David S. Yost, *NATO’s Balancing Act* (Washington, DC: United States Institute of Peace Press, 2014), 90.

objectives, set in motion a concerted effort to reduce the role that nuclear weapons play in strategic deterrence. The new American leader proclaimed, “America’s commitment to seek the peace and security of a world without nuclear weapons.”⁵⁵ The United States followed up the president’s pronouncement a year later with a comprehensive Nuclear Posture Review that was completed in April 2010, and seven months later, in November 2010, NATO issued a new Strategic Concept. Following these events, the Alliance commissioned the Deterrence and Defense Posture Review (DDPR) to implement the guidance promulgated in the 2010 Strategic Concept.

The 2010 Nuclear Posture Review (NPR) examined the function of nuclear weapons in the defense of the United States and its allies. It was a full-scope review of the American strategic and non-strategic nuclear arsenal. This review was supported by the U.S. Congress, which had mandated a review of America’s nuclear deterrence because it believed that many of the programs associated with it were outmoded and wasteful; it gave the Obama administration a policy tool to use in its work toward “a world free of nuclear weapons.”⁵⁶ The Obama administration, like the George W. Bush administration that preceded it, did not view Russia’s actions against Georgia in 2008 as a direct threat to American interests in Europe, and, therefore, it chose to pursue a policy of engagement with Moscow.⁵⁷

The NPR attempted to strike a positive chord with respect to Russia. It declared that “Russia is not an enemy, and is increasingly a partner in confronting proliferation and other emerging threats.”⁵⁸ Despite this positive outlook toward Moscow, the NPR contained a note of discord when it addressed the United States’ non-strategic nuclear

⁵⁵ Barack Obama, “President Obama’s Speech in Prague,” U.S. Embassy in The Czech Republic (April 5, 2009). Accessed 6 March 2017. <https://cz.usembassy.gov/our-relationship/president-obamas-speech-in-prague/>.

⁵⁶ Roberts, *Case for U.S. Nuclear*, 33.

⁵⁷ Nikolas K. Gvosdev, “Obama’s Russia Policy: A Post Mortem and Lessons for the Next President,” *Russia Matters*, Harvard Kennedy School Belfer Center, October 26, 2016, Accessed May 18, 2017, <https://www.russiamatters.org/analysis/obamas-russia-policy-post-mortem-and-lessons-next-president>.

⁵⁸ Department of Defense, *Nuclear Posture Review Report* (Washington, DC: Department of Defense, April 2010), Last Accessed 31JAN17, 15, https://www.defense.gov/Portals/1/features/defenseReviews/NPR/2010_Nuclear_Posture_Review_Report.pdf.

weapons in Europe. It stated, “Russia maintains a much larger force of non-strategic nuclear weapons, a significant number of which are deployed near the territories of several North Atlantic Treaty Organization countries and therefore are a concern to NATO.”⁵⁹ This lingering suspicion of a future Russian threat formed the basis for the NPR’s direction to the Air Force to maintain a DCA capability, and for the decisions to modernize the B-61 nuclear gravity bombs for compatibility with the F-35 and to ensure enhanced nuclear weapons safety.⁶⁰ With these decisions, the NPR maintained the U.S. extended nuclear deterrence policy for NATO.

The NPR was also singular in that it was conducted in consultation with U.S. allies in Europe and Asia. It explicitly stated that the report’s results would be discussed with the NATO Allies, and that no changes to NATO’s nuclear posture would be made unilaterally.⁶¹ Furthermore, the NPR was released as an unclassified document, a first for such a report, so that it could have a greater role in establishing U.S. global leadership on nuclear non-proliferation efforts. Despite the positive goals of the Obama administration, the 2010 NPR was controversial. As Roberts observed, its detractors claimed that it would “compromise the requirements of a safe, secure, and effective deterrent in the interests of accelerating abolition.”⁶² The work of the Obama administration did, however, resonate across the Atlantic, and NATO responded in short order with a revision of its nuclear deterrence posture.

The Alliance issued its 2010 Strategic Concept only seven months after the NPR was released. It reflected many of the same concepts in the U.S. document—including the same ambivalent viewpoints on Russia. NATO defined its relationship with Russia as “of strategic importance as [Russia] contributes to creating a common space of peace, stability and security.” It further declared that the “NATO-Russia relationship is based upon the goals, principles and commitments of the NATO-Russia Founding Act and the Rome Declaration, especially regarding the respect of democratic principles and the

⁵⁹ Department of Defense. *Nuclear Posture Review*, 27.

⁶⁰ Ibid., 27–8.

⁶¹ Ibid., 32.

⁶² Roberts, *Case for U.S. Nuclear*, 34.

sovereignty, independence and territorial integrity of all states in the Euro-Atlantic area.”⁶³ As with the U.S. government’s assessment, NATO also called attention to the threat posed by the “greater Russian stockpiles of short-ranged [nuclear] weapons” that are based close to NATO territory.⁶⁴ The Strategic Concept document mirrored the United States’ position; however, it required resolution of many details before it could be implemented in practice, and to accomplish this, NATO leaders commissioned the Deterrence and Defense Posture Review (DDPR).

The DDPR was undertaken in an environment of intense debate among the Alliance Members regarding the role of nuclear weapons in Europe, which called into question the need for U.S. extended nuclear deterrence for NATO. Political movements that shared President Obama’s goal of a world without nuclear weapons drove this debate. Several lobby groups, such as the Global Zero Movement, placed pressure on NATO governments to call for the removal of the remaining U.S. B-61 gravity bombs, and instead called for reliance on U.S. strategic nuclear forces alone to support the Alliance.⁶⁵ This view was eventually moderated by the poor state of NATO’s conventional forces, the turmoil in the Middle East related to the Arab Spring, and the increasing hostility that Moscow was showing toward the Alliance’s plans to build Ballistic Missile Defense into NATO’s deterrence posture—although this capability was oriented against threats from “outside the Euro-Atlantic security area.”⁶⁶ Notwithstanding the deteriorating security environment, the DDPR’s language reflected what some observers regarded as a reduced focus on U.S. non-strategic nuclear weapons. According to the DDPR, “The supreme guarantee of the security of the Allies is provided by the

⁶³ NATO, *Strategic Concept For the Defence and Security of The Members of the North Atlantic Treaty Organization: Adopted by the Heads of State and Government in Lisbon 19–20 November 2010*, Accessed 5 March 2010, 30, http://www.nato.int/nato_static_fl2014/assets/pdf/pdf_publications/20120214_strategic-concept-2010-eng.pdf.

⁶⁴ Ibid., 24.

⁶⁵ Roberts, *Case for U.S. Nuclear*, 186.

⁶⁶ Ibid., 189.

strategic nuclear forces of the Alliance, particularly those of the United States.”⁶⁷ This, in fact, did not represent any change in Alliance policy.⁶⁸

The DDPR subtly placed U.S. extended nuclear deterrence in question by proposing a situation in which NATO might “reduce its reliance on non-strategic nuclear weapons based in Europe.”⁶⁹ Despite this language, the DDPR explicitly declared that “the Alliance’s nuclear force posture currently meets the criteria for an effective deterrence and defence posture,”⁷⁰ thereby endorsing the continued presence of U.S. nuclear weapons in Europe, although it also introduced the possibility of their reduction or removal.

F. RUSSIAN AGGRESSION

The remarks made by the French strategist Thérèse Delpech about the likelihood of future Russian malfeasance in her book on nuclear deterrence, which was posthumously published in 2012, are telling. She noted that Russia was still a “significant strategic player” because of its “nuisance capability,”⁷¹ and she called attention to the lack of insight into Russian strategic thinking as a critical analytical deficiency for the West. Delpech declared that “the worst-case scenario is not war with the West, but instability in the region separating Europe from Russia.”⁷² In her view, “all the good words coming from Washington” are meaningless to a Russian audience that views NATO, and particularly the United States, as Russia’s “first adversary.”⁷³ Delpech clearly anticipated the danger that Russia posed to the post-Cold War international system, and she singled out Crimea as a potential flashpoint,⁷⁴ a prophetic observation given recent events. Additionally, she drew attention to Russia’s reliance on nuclear

⁶⁷ NATO, *Deterrence and Defence Posture Review*: Issued on 20 May 2012, Accessed 5 Mar 2017, Art. 9, http://www.nato.int/cps/en/natohq/official_texts_87597.htm.

⁶⁸ See the 1991, 1999, and 2010 NATO Strategic Concepts.

⁶⁹ NATO, *Deterrence and Defence Posture Review*, Art. 12.

⁷⁰ *Ibid.*, Art. 8.

⁷¹ Delpech, *Nuclear Deterrence in the 21st Century*, 130.

⁷² *Ibid.*, 132.

⁷³ *Ibid.*, 131, 133.

⁷⁴ *Ibid.*, 134

weapons as “compensation for the loss of its traditional conventional superiority” and as “a major political and psychological factor” in challenging the West.⁷⁵ Given Delpech’s remarkable ability to foretell contentious Russian behavior, her focus on the nuclear dimension of Russian strategic thinking is reason enough to reconsider the importance of U.S. extended nuclear deterrence for Europe.

In March 2014, the Russian Federation conducted an elaborate invasion of Crimea, illegally annexed the territory, and simultaneously initiated an insurgency in eastern Ukraine against the Western-oriented government in Kiev. This action represented a marked shift in Russia’s relations with the West, and sparked a strong reaction from the Alliance, which was taken by surprise. NATO suspended all military cooperation with Russia,⁷⁶ and with the Wales Summit Declaration in September 2014, it took steps to reconfigure its conventional force structure to meet a potential Russian threat that had been disregarded since the collapse of the Berlin Wall in 1989.⁷⁷ As Russia continued its illegal occupation of Crimea, and its covert war in eastern Ukraine, NATO convened a summit in Warsaw, Poland, in July 2016 to address the continued threat from Moscow.

These high-level meetings and their declarations clearly signal that NATO has reassessed the potential of Russia to threaten the Alliance and European security. The Warsaw Summit Communiqué announced the continuation of the concentrated effort, originally announced in Wales, to reconfigure the Alliance’s focus on deterrence with the threat from Russia being the prime concern.⁷⁸ The Allies also introduced language in the Warsaw Summit Communiqué that addressed the role that nuclear weapons play in NATO’s relations with Russia. NATO took note of Russia’s “irresponsible and

⁷⁵ Delpech, *Nuclear Deterrence in the 21st Century*, 132.

⁷⁶ “Relations With Russia: Milestones In Relations,” NATO, Last Updated 20 December 2016, http://www.nato.int/cps/en/natolive/topics_50090.htm.

⁷⁷ *Wales Summit Declaration: Issued by the Heads of State and Government participating in the meeting of the North Atlantic Council in Wales*, 05 Sep 2014 (last updated 26 Sep 2016), Para 5–13, 19, http://www.nato.int/cps/en/natohq/official_texts_112964.htm.

⁷⁸ *Warsaw Summit Communiqué: Issued by the Heads of State and Government participating in the meeting of the North Atlantic Council in Warsaw 8–9 July 2016*. 09 JUL 2016 (last updated: 03 Aug 2016), http://www.nato.int/cps/en/natohq/official_texts_133169.htm#piracy.

aggressive nuclear rhetoric,”⁷⁹ and the Warsaw Summit Communiqué stated, “NATO’s nuclear deterrence posture also relies, in part, on United States’ nuclear weapons forward-deployed in Europe and on capabilities and infrastructure provided by Allies concerned.”⁸⁰ The inclusion of this language, referring to U.S. extended nuclear deterrence as playing a significant role in NATO’s defense, is a marked change from the Wales Summit Declaration, which made no mention of U.S. nuclear weapons in Europe, and from the 2010 Strategic Concept and the DDPR, which only mentioned U.S. nuclear weapons in Europe in the context of a reduced reliance. The inclusion of the U.S. extended nuclear deterrence capability in the Warsaw Summit Communiqué signals the birth of new strategic thinking in NATO and portends a debate related to adjusting the number and types of U.S. nuclear weapons forward-deployed in Europe. Thus, ends a 26-year process of de-emphasizing nuclear deterrence in NATO.

G. CONCLUSION

Given a resurgent Russia that has violated the territorial integrity of two of its neighbors (Georgia and Ukraine), and NATO’s post-Cold War enlargement extending into the former Soviet space, U.S. extended nuclear deterrence has again become an important part of NATO’s strategic calculations. As a result of the threat from Russia to NATO’s newest Allies in the Baltic region, and elsewhere in Eastern Europe, U.S. extended nuclear deterrence offers a proven and effective means for protecting and assuring NATO in the post-Cold War world. Unfortunately, this necessary refocus on deterrence comes after three decades of determined efforts to reduce the Alliance’s reliance on nuclear weapons for guaranteeing its security—from the 1987 INF Treaty and Bush’s 1991 PNIs to the end of the Obama administration in 2017—and overcoming the self-imposed restraints that came with the demise of the Soviet Union is proving to be a challenge. Today, the Alliance’s failure to foresee the emerging Russian threat to NATO’s post-Cold War security has resulted in a situation where NATO is relying on a

⁷⁹ Ibid., para 10.

⁸⁰ *Warsaw Summit Communiqué*, para 53.

vastly reduced U.S. extended nuclear deterrence posture that may not be adequate to deter Russia.

The American decision to unilaterally reduce the quantity and types of U.S. nuclear weapons forward deployed in Europe was taken in 1991 at a time when such a significant reduction corresponded to a period of liberalization and openness in the Soviet Union. This action was reciprocated to some extent by the Soviet, and later Russian, leaders. Unfortunately, as Russia gradually overcame the internal social and economic turmoil that resulted from the collapse of the Soviet system, it gradually consolidated power in an autocratic government that views the democratic West as a threat to its power and prestige. This shift from a liberalizing regime to an autocracy was largely overlooked by U.S. and NATO security policy makers, and the optimism related to prospects for nuclear arms control and disarmament contained in President Obama's 2009 Prague speech was reflected in a series of security policy reviews—the U.S. NPR, the 2010 NATO Strategic Concept and the DDPR—undertaken with an inaccurate assessment of Russia's threat to regional stability.

With the illegal annexation of Crimea and the ongoing insurgency in eastern Ukraine, Russia has now revealed itself as a threat to NATO, a fact which is appropriately reflected in the Wales and Warsaw Summit declarations of 2014 and 2016. Given this new reality, the reduced U.S. extended nuclear deterrent in Europe deserves reassessment, and it could probably be modified in a manner that would increase its effectiveness in deterring Russian aggression or coercion. To accomplish this, a new U.S. NPR and corresponding NATO Strategic Concept and DDPR may be required, and the vision many NATO leaders hold of a Europe, and eventually a world, without nuclear weapons should be indefinitely shelved so as to not endanger the security of the United States and its NATO Allies. As the Allies agreed at Warsaw, the immediate priority is enhancing deterrence.

III. MODIFYING THE U.S. EXTENDED NUCLEAR DETERRENCE POSTURE IN EUROPE

A. INTRODUCTION

Russia's resurgence is a clear threat to NATO, and to U.S. interests in general. Moscow's illegal annexation of Crimea in 2014, its ongoing support for ethnic Russian separatists in eastern Ukraine, and its noncompliance with the Intermediate-range Nuclear Forces (INF) treaty constitute a particularly grave challenge to NATO's collective defense. This threat is especially acute due to the reduced and neglected state of NATO's military force structure, which has been allowed to degrade since the collapse of the Soviet Union in 1991. Russia's actions and its now firm position in opposition to Western prominence in the established liberal-democratic international system have elicited a renewed focus among NATO member states on rebuilding military capability; however, persistent European economic stagnation and political instability, including Brexit,⁸¹ and populist Eurosceptic political sentiments on the continent, make the establishment of a large conventional military deterrent unrealistic, and frankly undesirable, because of the likelihood of provoking a pre-emptive Russian reaction and because of the financial commitments needed to acquire and sustain such a large force. Therefore, nuclear deterrence, which has been the bedrock of NATO's deterrence and defense posture since its formation in 1949 and largely neglected since the 1990s, is a logical response to this now clearly re-established threat. Unfortunately, America's extended nuclear deterrence posture for Europe, after having been dramatically reduced after the collapse of European Communism, has not been updated to effectively address the threat from modern Russian—a threat significantly different from that posed by its Soviet antecedent.

⁸¹ Brexit refers to the United Kingdom's controversial decision in June 2016 to leave the European Union.

B. THESIS

Russia's new hostility toward NATO and the United States in particular derives in part from a series of actions taken by the West since the 1990s that have threatened Moscow's historical concept of security and its sense of exceptionalism. U.S. extended nuclear deterrence for NATO offers the optimal means to address this revanchist Russian threat; however, the U.S. nuclear posture must be substantially revised to achieve this goal. An examination of events following the breakup of the Soviet Union, including NATO's expansion in Eastern Europe analyzed from a Russian historical perspective, suggests that the current hostility that Moscow expresses toward the West will persist, and it poses an acute threat to NATO's Baltic member states. This thesis investigates the hypothesis that revisions to the U.S. extended nuclear deterrence posture in Europe could offer the optimal means to deter a revisionist Russia, and simultaneously assure NATO's Allies in Central and Eastern Europe without the deployment of a large conventional force.

C. RUSSIA'S TURN AGAINST THE WEST

The current hostility exhibited by Moscow toward the West, and especially the United States, has its immediate roots in a chain of events that started with NATO's expansion into Eastern Europe following the collapse of the U.S.S.R. in 1991. However, the attitude exhibited by modern Russia toward the West has an origin stretching far back into history. When analyzing the Soviets in 1946, George Kennan observed that Russia has always exhibited a "traditional and instinctive sense of insecurity," and that it lives in constant fear of "encirclement" by the "more competent, more powerful, more highly organized societies" of the "West."⁸² Furthermore, this "neurotic view of world affairs" prohibits Moscow from accepting a "permanent peaceful coexistence" with any other nation, especially another nation that it perceives to be superior to Russia in any way.⁸³ This observation is validated by contemporary experts on Russia such as Bobo Lo, who

⁸² George Kennan, Telegram to U.S. Secretary of State (the "long telegram"). February 22, 1946. (National Security Archive: George Washington University).
<http://nsarchive2.gwu.edu/coldwar/documents/episode-1/kennan.htm>

⁸³ Kennan, Telegram to U.S. Secretary of State.

notes that Moscow “cannot conceive of true security in the neighborhood separate from a dominant Russian influence.”⁸⁴ Furthermore, in Russia’s view, to protect itself it has to exert control past its borders “and surrounded itself with obedient peripheries, as buffers, against the rest of the world.” Because of this outlook, Russia requires uncontested control over the territory along its borders, its so called “near abroad,”⁸⁵ not only to support its particular concept of security but also to sustain its self-image as an exceptional “great country.”⁸⁶ Consequently, this perspective brings Moscow into conflict with any former Soviet state wishing to align with a rival great power. Additionally, any state seeking to project influence, or diminish Russian influence, in this region will be viewed as an adversary by Moscow. The prospect of losing control and influence in the post-Soviet space, therefore, is what has triggered Russia’s actions in Georgia and Ukraine,⁸⁷ and it now places NATO’s Baltic member states in peril.

As a result of its innate fear of losing influence in its near abroad, and its defensive orientation toward the outside world, Russia has demonstrated a historical preference toward strong state governance. Andrei Tsygankov, a scholar who embraces a “nativist perspective”⁸⁸ on Russian history, observes that “the central debate in Russia’s history has been about the optimal forms and parameters of strong government, rather than about its principal merits.”⁸⁹ Russia’s autocratic inclination places it in contrast to the West, which has instead developed a preference for democracy based on competitive electoral politics and compromise. In fact, Moscow views the various democratic social revolutions, the so called “colored revolutions,” that swept through many former communist countries in the decades following the Cold War as part of an American

⁸⁴ Bobo Lo, *Russia and the New World Disorder* (Washington, DC: Brookings Institution Press, 2015) 92.

⁸⁵ See Lo, Chapter 4, note 1, page 272, for a discussion of the term “Near Abroad” in relation to Russia and the former Soviet Republics.

⁸⁶ Robert Nalbandov, *Not by Bread Alone: Russian Foreign Policy under Putin* (Lincoln: University of Nebraska Press, 2016), 194.

⁸⁷ Andrei P Tsygankov, *The Strong State in Russia: Development and Crisis*. (Oxford University Press, 2014), 198–9.

⁸⁸ *Ibid.*, 6.

⁸⁹ *Ibid.*, 7.

“global strategy of regime change that [has] brought to power Russia-unfriendly leaders in the former Soviet region,” and holds that this policy is “also aimed at changing the regime in Russia.”⁹⁰ Moscow feels that any loss of its influence in the former Soviet space will undermine its ability to defend itself from this perceived threat induced by democratic sentiment originating from Europe and the United States. With democracy being a core tenet of Western political culture, and Moscow’s fear of democratic regime-change that it sees as an “external threat from the West,”⁹¹ the prospects of Russia integrating into the Western liberal-democratic international order are doubtful, despite the hopes to the contrary that emerged in the West after the fall of the Soviet system in 1991.

To summarize, Russia holds that its dominant role in the geographic area that encompasses the former republics of the Soviet Union must be respected, and that Moscow’s prerogatives trump the independence and sovereignty of the other former Soviet republics. Therefore, any external influence that erodes Russia’s authority in this sphere is viewed by Moscow as a direct threat to its hold on power, and an attempt to deny Russia’s rightful place in regional decision-making.⁹²

D. GEORGIA 2008

In 2008, Russia launched an invasion of Georgia, which signaled Moscow’s determination to prevent further NATO expansion into the former Soviet space that Russia considers its exclusive sphere of influence. Officially, Russia framed its military intervention in terms of protecting the minority Russian population of South Ossetia from Georgian aggression; however, it became evident that Russia’s military action was a pre-planned operation, timed to coincide with an Abkhazian offensive, and aimed at placing the pro-Western, pro-American, Georgian regime in a situation that blocked its plans to join NATO and the European Union.⁹³ Russia views the democratic government of

⁹⁰ Tsygankov, *The Strong State in Russia*, 133–4.

⁹¹ Ibid., 134.

⁹² Ibid., 198–9.

⁹³ Nalbandov, *Not by Bread Alone*, 253–5.

Georgia, established following the Rose Revolution of 2003, as the embodiment of Western encroachment in the Caucasus, designed to displace Russian influence; and, in the Kremlin's view, the prospect of Georgia becoming a NATO member represented a grave threat to Russia's security.⁹⁴ While some commentators have called the Russian action in Georgia a new form of Russian imperialism, an offensive action to acquire territory and influence, Bobo Lo asserts that Russia's intervention was motivated by defensive concerns,⁹⁵ a judgment which reaffirms Kennan's observations concerning the Russian perspective on security.

Russia's 2008 war with Georgia is also important because it was the first example of Moscow's willingness to use force to preserve its influence in its ex-Soviet borderlands. Moscow viewed Georgia's aspirations to join NATO as a clear indication of Western encirclement⁹⁶ that triggered its use of military force in order to protect itself from being isolated. Russia's actions in Georgia, therefore, are best understood as an attempt to solve a "security dilemma" created by Georgia's preference to align with the West instead of with Moscow. Under these circumstances, and considering that Moscow had already lost influence in important former communist European states and the ex-Soviet Baltic republics that had become NATO members in 2004, President Medvedev's government took preemptive action to prevent the complete loss of another former Soviet republic to the West.⁹⁷ The war with Georgia also tested Russia's ability to project military power in its near abroad.

E. THE "NEW LOOK" REFORMS

Russia went to war with Georgia for five days with an army based on mobilization and conscription that it had inherited from the Soviet Union. This force was untested in conducting operations outside of the Russian Federation, however, and it failed to achieve the results desired by Moscow. The war ended in military victory for

⁹⁴ Ibid., 255.

⁹⁵ Lo, *Russia and the New World Disorder*, 119.

⁹⁶ Nalbandov, *Not by Bread Alone*, 256–7.

⁹⁷ Ibid., 257.

Moscow, but the performance of Russia's army was judged inadequate, largely because of the time it took to achieve its goals in the face of a significantly inferior Georgian adversary. The root cause of this failure was judged to be poor command and control and inadequate logistics support. This poor showing was the impetus for Russia to implement the "most radical military reform since the creation of the Red Army."⁹⁸ This new initiative was carried out under Defense Minister Serdyukov's direction. Anatoliy Serdyukov was a radical choice for the post of defense minister. He was a businessman and former tax minister—a civilian, not a general. He was chosen specifically by the Kremlin to bring fiscal discipline to the military establishment, and to holistically reform the Russian armed forces.⁹⁹

Serdyukov succeeded in making many of the necessary changes to the old Tsarist mobilization system, which could have been accomplished by the Soviets after they acquired nuclear weapons in great numbers in the 1950s, but were obstructed by Stalin's insistence on maintaining the traditional Russian military model that had brought victory over Nazi Germany in the Second World War. This mindset then carried through successive Soviet regimes and resulted in the bloated and inefficient conscript army that the Russian Federation inherited after the dissolution of the U.S.S.R. in 1991. The new reforms enacted after 2008 were implemented rapidly, so as to prevent institutional inertia from undermining them. They involved scrapping the mobilization system, filled with skeleton units designed to fight strategic wars with reservists, for a regular force that was 20 percent smaller and manned at full strength with larger proportions of professional soldiers. These reforms were called the "New Look" and they transformed the Russian military into a force designed to fight "local conflicts in the former Soviet Union."¹⁰⁰ The strategic deterrent that Russia's nuclear weapons provided was finally judged sufficient to protect Russia from other great powers, and hence the army could

⁹⁸ Mikhail Barabanov, "Changing the Force and Moving Forward After Georgia," in Colby Howard and Ruslan Pukhov, eds, *Brothers Armed: Military Aspects Of The Crisis In Ukraine* (Minneapolis : East View Press, 2015), 2nd edition, pp. 92–3.

⁹⁹ Mikhail Barabanov, "Hard Lessons Learned," in Colby Howard and Ruslan Pukhov, eds, *Brothers Armed: Military Aspects Of The Crisis In Ukraine* (Minneapolis : East View Press, 2015), 2nd edition, 87–8.

¹⁰⁰ Barabanov, "Changing the Force and Moving Forward After Georgia," 93–4.

safely be reduced in size, which increased its effectiveness in expeditionary operations in the former-Soviet periphery, and even farther afield. Despite these changes, conscription is still a major part of Russia's new army; however, the enlisted ranks are now filled with professional NCOs, and only the privates are conscripts serving 12-month tours.¹⁰¹ The effects of Russia's "New Look" did not take long to reveal themselves. In 2014 Russia successfully used its military to illegally annex Crimea, and the ongoing fighting in Donbas is reported to involve regular Russian forces. Additionally, Russia's reformed military is conducting large-scale operations in Syria aimed at bolstering Moscow's client, Bashar al-Assad.

F. UKRAINE

Of all the former Soviet states, Ukraine is the most important to Russia, and Russia cannot accept a Ukraine that is completely independent and free from Moscow's control. In 2014, Ukraine was the victim of Russia's revanchist foreign policy after popular protests erupted when President Victor Yanukovich decided not to close ranks with Europe by concluding an association agreement with the European Union. This marked change in Ukrainian political orientation away from Moscow sparked a particularly violent reaction from the Kremlin. Russia's historical claim to Ukraine starts with the ancient kingdom of *Rus*, which developed around the modern Ukrainian capital of Kiev in the 9th century.¹⁰² Many prominent Russian nationalist politicians consider *Rus* the genesis of the Russian people. Sergey Lavrov's lengthy comments on "Kievan Rus," in an article posted on the Russian Ministry of Foreign Affairs website, are particularly illuminating; he draws a direct connection between modern Russian identity and ancient *Rus*, and he defines Russia's historical importance to Europe, including its defense of Europe from the "Mongolian invasion" of the 13th century, as originating from this ancient civilization whose capital is now the seat of the Ukrainian

¹⁰¹ Barabanov, "Changing the Force and Moving Forward After Georgia," 105.

¹⁰² Lo, *Russia and the New World Disorder*, 107.

government.¹⁰³ The importance of Ukraine in the Russian national narrative helps to explain Moscow's reactions to events in Kiev in 2013–2014.

In November 2013, Victor Yanukovich, the Ukrainian leader closely allied to Russia, was unable to quell mass protests that erupted into a social revolution against his regime after he decided (presumably under Russian pressure) to abruptly suspend Ukraine's European Union Association Agreement process, which sparked a decisive reaction from Moscow. Russia responded to what it described as a coup by seizing Crimea with force and fueling an ethnic Russian separatist uprising in the eastern Ukraine (Donbas) that has now degenerated into a civil war.¹⁰⁴ President Vladimir Putin commented on Russia's annexation of the Crimea by declaring that "Crimea has always been an inseparable part of Russia."¹⁰⁵ This sentiment is testament to the Russian historical perspective that influences Moscow's foreign policy, and Ukraine's unique place in this concept makes any attempt to distance Russia from Ukrainian affairs a threat to Moscow's security. The Kremlin fears what it considers Western democratic imperialism, especially in the territory adjoining its borders.

G. THE RUSSIAN THREAT IN THE BALTIC REGION

Russia's use of military force against perceived threats in its near abroad, as exemplified by the 2008 war with Georgia and the illegal annexation of Crimea in 2014, places the Baltic NATO countries of Estonia, Latvia, and Lithuania in acute danger of being subjected to similar hostile action by Moscow. Deterring such aggression is critical to maintaining NATO unity and avoiding regional, or possibly global, war. These Baltic Allies, and Norway and Poland, are the only NATO countries to share a land border with Russia—this includes the Kaliningrad Oblast—and that presents a temptation for revanchist Moscow to reassert its dominance in the lands that it has historically occupied, and which now contain significant ethnic-Russian minorities, through the use of force. If

¹⁰³ Sergey Lavrov, "Russia's Foreign Policy: Historical Background," *The Ministry of Foreign Affairs of the Russian Federation*. March 3, 2016. No 408–03-03-2016.

¹⁰⁴ Nalbandov, *Not by Bread Alone*, 220–1.

¹⁰⁵ Address by President of the Russian Federation, March 18, 2014, The Kremlin, Moscow, Paragraph 10, <http://eng.kremlin.ru/news/6889>

Russia decided to undertake some form of military aggression against the NATO Baltic allies, Article 5 of the North Atlantic Treaty would come into effect and the Alliance would be obligated to collectively defend the Baltic states.¹⁰⁶ Failure to meet this obligation, conversely, would call into question NATO's resolve and likely cause the collapse of the Alliance altogether. The absence of a significant NATO military force in these countries, the large ethnic Russian minorities in Estonia and Latvia, and the geographical advantage possessed by Russia in this region,¹⁰⁷ have called the dangers associated with this strategic situation to the forefront of recent NATO discussions,¹⁰⁸ and several studies have taken this strategic situation under examination.

H. THE RAND STUDY

From the summer of 2014 to the spring of 2015, the RAND Corporation conducted a comprehensive series of wargames focused on defending the Baltic allies from a Russian conventional attack; the results of this study have clearly exposed the extent of the danger facing NATO in this region. These wargames all modeled a “near-term Russian invasion of the Baltic states” with 22 maneuver battalions from the Russian Western Military District. The unequivocal result of all scenarios conducted during the study was that any concerted military intervention by Russia in the Baltic would be “a disaster for NATO,” with Russian forces entering Tallinn and Riga “between 36 and 60 hours after the start of hostilities.”¹⁰⁹ The four factors that facilitated Russia's success were identified by the RAND team as: (1) Russian numerical superiority in the region, where Russia's 22 heavy battalions were opposed by only 12 light NATO battalions, some of which were rapidly deployed to the region prior to the advent of hostilities; (2) Russia's “overwhelming advantage” in organic artillery and fire support; (3) NATO infantry battalions lacking the required maneuverability to avoid being destroyed in-

¹⁰⁶ David A Shlapak and Michael Johnson, “Reinforcing Deterrence on NATO's Eastern Flank: Wargaming the Defense of the Baltics,” RAND Corporation (2016), 3, DOI:10.7249/RR1253.

¹⁰⁷ Ibid.

¹⁰⁸ The 2014 NATO Wales Summit Declaration calls specific attention to Russia's use of military force to illegally annex Crimea, and the 2016 NATO Warsaw Summit Communiqué focuses particular attention on the threat Russia poses to the Baltic member states.

¹⁰⁹ Shlapak and Johnson, “Reinforcing Deterrence on NATO's Eastern Flank,” 4.

place; (4) the over-tasking of NATO's airpower, which could not sufficiently attrite the Russian forces within the small window of time it took for them to overrun Estonia and Latvia.¹¹⁰

The RAND study, which was funded by the Office of the Under Secretary of the Army, concluded that NATO needed to build-up a large conventional ground force in the Baltic region to successfully deter Russia from using military action to threaten the Baltic Allies. This prescribed deterrent force should consist of seven brigades, three of which should be heavy armor formations.¹¹¹ Furthermore, the RAND study recommended reconstituting the organic artillery and air defense capabilities of NATO maneuver formations, capabilities that have been grossly neglected in NATO's armies over the past decade.¹¹² This force would also require a new Corps HQ to be established in Europe to coordinate its operations. The model for this proposed solution has been adopted as a miniaturized form of the "layer cake" defensive posture used by NATO along the inner-German border during the Cold War.¹¹³ The fielding of such a large force has inherent problems. First, a force of this size would be expensive to build and maintain in a deployed status in the Baltic, and therefore many NATO member states would find it difficult to participate in such a force on financial grounds alone, especially given the economic stagnation currently afflicting Europe. Secondly, as Brad Roberts has pointed out, the build-up of "strong conventional forces on NATO's northern flank" introduces a real risk of provoking Moscow to initiate military action before such a force could be constituted,¹¹⁴ which in turn would defeat the logic underpinning a strategy of deterrence.

Since the publication of the RAND study's results NATO has deployed a small "trip-wire"¹¹⁵ force to the Baltic region. However, this force is vastly inferior to the RAND recommendations for establishing a conventional deterrent. Taking into

¹¹⁰ Shlapak and Johnson, "Reinforcing Deterrence on NATO's Eastern Flank," 5–6.

¹¹¹ *Ibid.*, 8.

¹¹² *Ibid.*, 9.

¹¹³ *Ibid.*, 10.

¹¹⁴ Roberts, *Case for U.S. Nuclear*, 195.

¹¹⁵ "Securing the Nordic-Baltic Region," *NATO Review Magazine*, Accessed 27 September 2017, <http://www.nato.int/docu/review/2016/Also-in-2016/security-baltic-defense-nato/EN/index.htm>

consideration a brigade size of 2,350 soldiers, which is the arithmetic mean of a standard U.S. Army brigade that varies from 1,500 to 3,200 soldiers,¹¹⁶ NATO's Enhanced Forward Presence (EFP) in the Baltic, which is only comprised of a total of 4,530 military personnel,¹¹⁷ is less than one-third of the seven brigades recommended by the RAND study. It would seem that NATO is acting with caution in order to not provoke a military response from Moscow by deploying to the Baltics the required force levels proposed by the RAND study. However, this half-measure fails to fully address the fundamental problem of deterring regional Russian aggression. A comprehensive answer to this question, therefore, would require an approach that did not dramatically increase conventional force numbers in the region, or substantially increase the financial burden on the Alliance, but would, instead, be effective in preventing a nuclear-armed adversary from using military force to achieve its regional security goals.

It is surprising, given the successful role that nuclear deterrence played throughout the Cold War in preventing open conflict between the West and the Soviet Union, that the RAND study did not consider adapting NATO's extended nuclear deterrence posture in order to achieve the strategic goal of protecting the Baltic Allies from Russian aggression. In fact, the RAND study only briefly mentions nuclear deterrence, and it subsequently dismisses the use of nuclear deterrence at the regional level as likely to provoke "an escalatory spiral that swiftly reaches the level of nuclear exchanges between the Russian and U.S. homelands."¹¹⁸ The authors of the RAND study, David Shlapak and Michael Johnson, acknowledge that RAND "did not portray nuclear use in any of our games."¹¹⁹ The RAND study, therefore, is fundamentally flawed. Unlike the RAND authors, Moscow does not restrict its view of nuclear war to only the strategic level. Instead, Russia has a well-developed and integrated concept for

¹¹⁶ Rod Powers, "U.S. Army Military Organization From Squad to Corps: A Guide to Each 'Building Block' in the Modern Army," *The Balance*, September 8, 2016, <https://www.thebalance.com/u-s-army-military-organization-from-squad-to-corps-4053660>.

¹¹⁷ "NATO's Enhanced Forward Presence," NATO Factsheet, May 2017, Accessed September 26, 2017, http://www.nato.int/nato_static_fl2014/assets/pdf/pdf_2017_05/1705-factsheet-efp.pdf

¹¹⁸ Shlapak and Johnson, "Reinforcing Deterrence on NATO's Eastern Flank," 7.

¹¹⁹ *Ibid.*, 13-note8.

nuclear weapons use at the regional level in support of its conventional military operations.¹²⁰

The fact that such a prominent organization as RAND has failed to take this Russian concept into account exposes a dangerous situation that has developed across almost the entire spectrum of post-Cold War Western strategic thought. The mirror imaging of Western concepts related to nuclear warfare, which view nuclear weapons use as taboo and fail to conceive of limited nuclear warfare, onto the Russians has largely overlooked the fact that Russian theory approaches nuclear warfare from multiple angles, and small non-strategic nuclear weapons (NSNWs) are integrated into Moscow's conventional battle doctrine. Consequently, Russia fully anticipates the use of NSNWs to secure gains made by its conventional forces in any future conflict with NATO. This conceptual mismatch creates a situation that, instead of deterring the use of these weapons, increases the likelihood that Russia will employ them.

A comprehensive study of Russia's nuclear weapons programs, and how Moscow views the use of its nuclear arsenal in achieving its national goals, was recently completed by Dave Johnson for the Paris-based Fondation pour la Recherche Stratégique; this study incorporates an updated (post-Crimea) analysis of Russian nuclear capabilities and intentions, which is important for understanding the nuclear dimension of NATO's Baltic defense problem. As Johnson observes, "Russia thoroughly analyses, plans, structures, and postures its forces for the ultimate contingency—employment of nuclear weapons." In considering military operations in its "near abroad," Moscow plans on "achieving its aims through employment of nuclear weapons for de-escalation and containment of a regional conflict."¹²¹ This necessitates the use of NSNW on the regional level, which includes the Baltic states, and Johnson notes that Russia has invested heavily in these weapon systems since the collapse of the Soviet Union. Estimates of Russian NSNW numbers range from 3,000 to 6,500.¹²² Moscow has also developed a multiplicity

¹²⁰ Roberts, *Case for U.S. Nuclear Weapons*, 133–4.

¹²¹ Dave Johnson, "Nuclear Weapons in Russia's Approach to Conflict," *Fondation Pour la Recherche Stratégique*, no. 6 (November 2016), 68, ISBN: 978–2-911101-93-9.

¹²² *Ibid.*, 34.

of delivery systems that are also dual-capable, “blurring”¹²³ the distinction between nuclear and conventional capabilities, unlike the United States and its NATO allies, which deploy only B-61 gravity bombs in Europe.¹²⁴ This introduces a level of ambiguity into NATO’s security calculations where direct confrontation with Russian forces is a possibility—such as in the Baltic region.¹²⁵ Furthermore, Russia’s development of highly capable NSNWs has led to its violation of the INF Treaty through the deployment of the ISKANDAR-K Ground Launched Cruise Missile (GLCM),¹²⁶ which has yet to elicit a determined response from NATO, which continues to hope for the return of better relations with Moscow.

To understand Russian theory with regard to the use of nuclear weapons, it is critically important to note that it differs greatly from current Western thinking on this subject. Dmitry Adamsky, from the School of Government, Diplomacy, and Strategy at IDC Herzliya, explains that during the Cold War the Soviets and the West shared “a relatively similar basic view of deterrence logic,” and that the Soviets relegated the use of NSNWs to the operational, vice the strategic, level of war.¹²⁷ However, as modern Russia emerged from the Cold War, it started to re-examine concepts of limited nuclear war and regional nuclear deterrence; from this analysis the concept of what is now referred to in Western literature as a strategy of nuclear “de-escalation” emerged.¹²⁸ Katarzyna Zysk of the Norwegian Institute for Defence Studies explains this concept as a limited nuclear strike that entails the use of NSNW against a wide variety of targets, including “uninhabited areas or secondary military targets with limited or no military personnel. Subsequent stages of this escalation could include intimidation with limited nuclear strikes on infrastructure and facilities vital to the enemy’s military operations, which

¹²³ Johnson, “Nuclear Weapons in Russia’s Approach to Conflict,” 35.

¹²⁴ William M. Arkin, “America’s Nuclear Weapons in Europe Are the Nuclear Elephant in the Room,” VICE NEWS (March 31, 2016), <https://news.vice.com/article/american-nuclear-weapons-in-belgium-kleine-broegel>

¹²⁵ Johnson, “Nuclear Weapons in Russia’s Approach to Conflict,” 35.

¹²⁶ Ibid., 45–7.

¹²⁷ Dmitry Adamsky, “If War Comes Tomorrow: Russian Thinking About ‘Regional Nuclear Deterrence,’” *The Journal of Slavic Military Studies*, no. 27 (March 10, 2014): 181.

¹²⁸ Ibid., 182–3.

would cause damage but not significant loss of life.”¹²⁹ The main objective of such an action would be to attempt to “prevent the conflict from expanding by threatening or delivering limited nuclear strikes at an early stage of the conflict, thereby forcing a de-escalation of hostilities.” The theory is that “the fear of assured destruction would dissuade the adversary from deploying his own nuclear forces and therefore force him to back off.”¹³⁰ Effectively, the Russians would use a nuclear strike in an attempt to “escalate to de-escalate” a situation in which they judged that they had lost a conventional advantage over their adversary.¹³¹ In the Baltic scenario addressed in the RAND study, such a “de-escalatory” nuclear strike would likely come after Russian forces had overrun the Baltic Allies, and NATO had built-up a conventional force capable of dislodging them from the territory they had gained. Moscow would then, according to this logic, use a limited nuclear strike to consolidate its victory by forcing NATO into a negotiated settlement to the conflict—one that would have an obvious advantage for Russia. The fact that the RAND study did not take such a likely Russian use of nuclear weapons into account calls into question the validity of its findings, and furthermore, it is clear that an examination of NATO’s extended nuclear deterrence posture is called for in designing an effective strategy to counter Russian ambitions in the Baltic region. Focusing on a conventional-only approach to this problem ignores the Russian perspective.

I. UPGRADING NATO’S EXTENDED NUCLEAR DETERRENT

Few recent studies have examined modifications to NATO’s extended nuclear deterrence posture; however, Matthew Kroenig has attempted to fill this void. His November 2016 paper, written for the Atlantic Council, outlines criteria for selecting appropriate improvements to NATO’s nuclear deterrence posture. These criteria include

¹²⁹ Katarzyna Zysk, “Nonstrategic Nuclear Weapons In Russia’s Evolving Military Doctrine,” *Bulletin of the Atomic Scientists*, no. 73 (2017): 323.

¹³⁰ Ibid.

¹³¹ Ibid.

Military Effectiveness, Escalation Control, Coupling and Burden Sharing, Alliance Unity, Timeliness, and Cost.¹³² The following is a detailed discussion of these criteria.

Military Effectiveness: This must be a fundamental attribute of any future modification to NATO's deterrent posture—a weapon has to be capable of being effective against the perceived threat if deterrence is to be achieved. While the imperative of pursuing this attribute may appear to be self-evident, it is not always applied in practice. The current, and only, U.S. nuclear weapon in Europe in NATO's extended nuclear deterrence posture, the B-61 gravity bomb, lacks this fundamental characteristic. It is meant to be delivered by dual-capable fighter-bombers, and as the RAND study makes clear, NATO airpower involved in addressing a Russian offensive in the Baltic would be overwhelmed with “multiple jobs to do,” and the Russians might be able to prevent NATO from achieving air superiority in the near-term.¹³³ Therefore, tasking an already highly burdened air capability to support a nuclear strike might be impractical. At the core of this specific problem is the inadequacy of NATO's ability to Suppress Enemy Air Defenses (SEAD). Since the sunset of the Soviet threat, SEAD capability among NATO forces has been allowed to atrophy. The British government has officially called attention to this issue in 2000 by noting “the alarming deficit in European capabilities for suppressing and destroying even relatively unsophisticated air defences.”¹³⁴ Additionally, Germany has recognized that its air force “no longer meets the requirements” needed to execute this critical wartime function.¹³⁵ American observers have recently called attention to this issue, and Mike Pietrucha, an experienced electronic warfare expert, has noted that the U.S. Air Force has allowed SEAD capability to atrophy since the 1991

¹³² Matthew Kroenig, *Toward a More Flexible NATO Nuclear Posture: Developing a Response to a Russian Nuclear De-Escalation Strike*. Atlantic Council: Brent Scowcroft Center on International Security (November 2016), 5–7, https://issuu.com/atlanticcouncil/docs/toward_a_more_flexible_nato_nuclear.

¹³³ Shlapak and Johnson, “Reinforcing Deterrence on NATO's Eastern Flank,” 6, 9.

¹³⁴ House of Commons, *Select Committee on Defence Fourteenth Report* (London: 23 October 2000), para 111, <https://publications.parliament.uk/pa/cm/199900/cmselect/cmdfence/347/34702.htm>

¹³⁵ Federal Ministry of Defence, *Air Power Development Strategy: 2016* (Berlin: December 2015), 27, <https://www.bmvg.de/resource/resource/UIRvcjZYSW1RcEVHaUd4cklzQU4yMzFYNNl6UGxhbm1vNGx0VVVuZlIvaEtMR2NPahZTcEhxMnhlcVJwV3I1YjJNL1BIakowSlpXSXZhR0w4Yytlemtra0hZMFA3RWxIVmk5SIRSbzRrRTg9/20160511-MilitaerischeLuftfahrt-Screen-ENG-final.pdf>

Gulf War, which now calls into question the ability of U.S. airpower to penetrate an alert, modern, Integrated Air Defense System (IADS),¹³⁶ such as that which the Russian military has established in the Baltic region. Without robust SEAD capability, the effectiveness of the B-61 nuclear gravity bomb, which needs to be dropped over a target deep inside enemy airspace, cannot be considered a truly effective military weapon, and consequently its deterrence value is greatly diminished.

Another important characteristic that any new addition to NATO's nuclear deterrent posture must possess is the ability to respond proportionately to a Russian "de-escalatory" strike. The Russians have a wide variety of nuclear weapons to choose from in considering such a strike, and some of these have sub-kiloton yields.¹³⁷ NATO's B-61 reportedly has a variable yield of between .3 and 50 kilotons;¹³⁸ however, as has been discussed, its usefulness in a Baltic scenario is uncertain. Therefore, NATO might have to look elsewhere for a suitable tool, and the other American, British, and French nuclear weapons have yields of 100 kilotons or greater, negating their ability to meet this need.¹³⁹ The limited-use capability of the only British nuclear weapon system, the submarine-launched Trident ballistic missile, consists of lower yield options.¹⁴⁰ However, this weapon is designed to serve mainly as a delivery platform for strategic nuclear strikes, and therefore, any use of this missile in responding to a "de-escalatory" Russian nuclear strike would risk escalating the conflict. France has contemplated the utility of lower-yield weapons, and the potential use of limited nuclear strikes.¹⁴¹ However, unlike the United Kingdom and the United States, Paris has never been part of NATO's Nuclear

¹³⁶ Mike Pietrucha, "The Need For SEAD Part I: The Nature of SEAD," *War on the Rocks* (May 17, 2016), <https://warontherocks.com/2016/05/the-need-for-sead-part-i-the-nature-of-sead/>

¹³⁷ Barry D. Watts, *Nuclear-Conventional Firebreaks And the Nuclear Taboo*, *Center for Strategic and Budgetary Assessments* (2013), 31.

¹³⁸ Clark Murdock, Samuel J. Brannen, Thomas Karako, Angela Weaver, Barry Blechman, Elbridge Colby, Keith B. Payne, Russell Rumbaugh, and Thomas Scheber, *Project Atom A Competitive Strategies Approach to Defining U.S. Nuclear Strategy and Posture for 2025–2050*, Center for Strategic and International Studies, 2015, Accessed October 17, 2017, Table 1, Page 20, http://csis.org/files/publication/150601_Murdock_ProjectAtom_Web.pdf.

¹³⁹ Kroenig, *Toward a More Flexible NATO Nuclear Posture*, 5

¹⁴⁰ David Yost, "New Approaches to Deterrence in Britain, France, and the United States," *International Affairs*, no. 81 (2005) 107–8.

¹⁴¹ David Yost, "France's New Nuclear Doctrine," *International Affairs*, no. 82 (2006), 704–5, 719.

Planning Group, and as a consequence, it is unrealistic to anticipate a French-based nuclear deterrent in the Baltic region. Consequently, as the situation now stands, NATO has no fully satisfactory nuclear instrument with which to adequately uphold deterrence in the Baltic; it must rely mainly on conventional strike capabilities that are dependent on access to space-based services, and access to these services cannot be guaranteed in a conflict with a peer-competitor such as Russia. In summary, Kroenig argues, any new weapon system added to NATO's extended nuclear deterrence posture requires a warhead with a sub-kiloton yield to achieve "a discriminate and proportional response to a limited Russian use of nuclear weapons."¹⁴²

Escalation Control: This criterion calls attention to the fundamental problem of using, or considering the use of, nuclear weapons, and this is the task of preventing the conflict from escalating beyond the immediate regional level to global nuclear war, which could lead to great devastation. In order to prevent such an occurrence, Kroenig argues, additions to NATO's nuclear arsenal should "be pre-positioned in theater to avoid the perception that NATO was attempting to escalate the conflict by flowing in forces or striking from bases outside the region."¹⁴³ This would lessen the risk that Moscow would interpret a proportional nuclear response to a Russian "de-escalatory" nuclear strike as an escalation of the conflict.

Coupling and Burden Sharing: NATO is an organization based on collective defense, and therefore, it is important to ensure that all member states are involved in the decision to implement a nuclear response. This is accomplished through Alliance consultation processes. Moreover, some non-nuclear-weapon-state NATO members take an active part in hosting or being prepared to employ U.S. nuclear weapons in a crisis or conflict. This concept calls for avoiding any single nation holding exclusive control of nuclear weapons systems designated for the collective defense of the Alliance.¹⁴⁴ However, given the current popular political environment related to nuclear weapons in Europe, this principle may have to be honored by respecting the 1962 Athens Guidelines.

¹⁴² Kroenig, *Toward a More Flexible NATO Nuclear Posture*, 5

¹⁴³ Ibid., 6

¹⁴⁴ Ibid.

According to Michael Legge, “the first significant step toward giving the non-nuclear Allies a consultative role in decisions over the use of nuclear weapons had been taken at the Athens Council meeting in May 1962, when both the U.S. and the U.K. undertook not only to continue to make available to the Alliance adequate numbers of those weapons to meet the needs of NATO defense, but to *consult their Allies, time and circumstances permitting, before initiating the use of nuclear weapons.*”¹⁴⁵

Alliance Unity: Despite the recent actions taken by Moscow, not all NATO member states see the Russian threat the same way, and this creates a problem in forming a consensus inside the Alliance. This lack of unity translates to a view by some Allies that building new nuclear capabilities would be “unnecessary and dangerous.”¹⁴⁶ Because of this disunity, any changes made to NATO’s nuclear posture will have to take into account these differing attitudes, and the general bias against nuclear weapons in much of NATO Europe. Therefore, any change will have to avoid controversy as much as possible, and this includes not breaking any existing treaties, such as the INF Treaty, which Moscow has already violated. If NATO followed the Russian example, it might stimulate domestic opposition that would inhibit consensus inside the Alliance.

In fact, the political dimension, the opposition to nuclear weapons in some quarters, is the largest obstacle to modifying NATO’s nuclear deterrent. This resistance originates from various socio-political movements aligned against the existence of nuclear weapons that originated during the Cold War. Their activism could present a serious challenge to efforts to modernize the U.S. extended nuclear deterrent for NATO to meet the emergent Russian threat. Jacek Durkalec and Matthew Kroenig validate this observation. In their view, “Given the real sensitivities that many NATO Allies have with regard to policies touching on nuclear weapons, any upgrades to NATO’s nuclear deterrent will make for a steep uphill battle.”¹⁴⁷

¹⁴⁵ J. Michael Legge, *Theater Nuclear Weapons and the NATO Strategy of Flexible Response*, R-2964-FF (Santa Monica, CA: Rand Corporation, April 1983), 14; italics added.

¹⁴⁶ Kroenig, *Toward a More Flexible NATO Nuclear Posture*, 7.

¹⁴⁷ Jacek Durkalec and Matthew Kroenig, “NATO’s Nuclear Deterrence: Closing Credibility Gaps,” *The Polish Quarterly of International Affairs*, no. 1 (2016): 49.

As has been outlined, Russia is likely to maintain its antagonistic foreign policy toward the West for the foreseeable future, and therefore, a strategy based on misplaced hope would put the Alliance's security in peril. A U.S. Defense Department Report from 2006 best expresses the rational counter to this viewpoint:

The desirability of a nuclear-free world is irrelevant. It is not possible to erase from history technology that has been widely understood for decades. The worst outcome would be for the United States to have a nuclear deterrent that is inadequate to address the variety of weapons of mass destruction (WMD) threats confronting the United States and its allies.¹⁴⁸

Timeliness: The Russian nuclear threat is present and clearly defined. Therefore, NATO has an urgent need to deploy a capable deterrent. This necessitates that any proposed modification to the Alliance's nuclear deterrent be implemented in a timely manner. There is not time to develop a new weapons system from scratch. The longer Russia has an advantage in options for the limited use of nuclear weapons, the greater the danger of Moscow deciding to test the Alliance's resolve. This temptation needs to be removed from the Russian calculus as soon as possible.¹⁴⁹

Cost: The "large U.S. national debt" and the persistent European economic crisis limit the resources available to Allied governments for new military programs, and this consideration affects any new nuclear deterrent. Given these financial constraints, building a new nuclear deterrence posture will have to be affordable.

J. THE BEST OPTIONS

Kroenig's list of criteria for selecting a suitable addition to America's extended nuclear deterrence posture for NATO is logical; however, it is not complete. The additional consideration of the assurance value of a future weapon system should be included in this calculation. The assurance value of a weapon may be considered, by some, inherent in its military effectiveness. However, the nuanced difference between

¹⁴⁸ U.S. Department of Defense, *Report of the Defense Science Board Task Force on Nuclear Capabilities: Report Summary* (Washington, DC: Office of the Under Secretary of Defense For Acquisition, Technology, and Logistics, 2006), 3.

¹⁴⁹ Kroenig, *Toward a More Flexible NATO Nuclear Posture*, 7.

these two qualities is important. In considering a Baltic scenario, the NATO members along Russia's borders need to be certain that the Alliance will respond with the appropriate level of force if their security is threatened, or their territorial integrity is violated. Having an effective weapon, or weapon systems, to respond to an attack is only a precondition to solving this security problem—it is not, in itself, the answer to the problem. The complete answer to the Baltic member states' security problem comes from the combination of an effective capability and the trust that NATO will employ it in their defense without delay.

Given this consideration, a new air-delivered B-61 gravity bomb based outside the Baltic region and delivered by, for example, a German aircraft might not meet this requirement. In fact, Kroenig's analysis of the diverse options available to NATO leads him to recommend an air-launched cruise missile—a nuclear version of the JASSM (Joint Air-to-Surface Standoff Missile)—to deter Russian aggression on NATO's eastern flank.¹⁵⁰ Such a weapon system would certainly be much more effective than the current B-61, as it can be launched from a stand-off range outside of the Russian Integrated Air Defense (IAD) envelope.

Unfortunately, this solution may not be available in a timely fashion, as Kroenig suggests, because it would involve developing, or adapting, a physics package to a new standoff missile and then integrating that with an airframe. Furthermore, if the current model of using Allied aircraft and pilots to deliver these weapons was followed, this process would involve the exchange of highly classified proprietary technical material between foreign countries and their defense industries. Kroenig assumes that such a process would not be difficult and could be accomplished quickly, but he may be mistaken in this regard. Another factor that argues against choosing an air-delivered addition to the extended nuclear deterrent is its lack of a strong assurance attribute. Military aircraft have, in a general sense, a strictly military purpose, and deploying them to a region such as the Baltic would be a dramatic political move intended to send a warning message to a potential adversary—Russia.

¹⁵⁰ Kroenig, *Toward a More Flexible NATO Nuclear Posture*, 9.

Because of this, the flexibility and visibility of such a deterrent would be limited by a variety of factors, including the constraints of the prevailing political environment, the difficulty in communicating the intended message, and the inherent danger of escalating a crisis by abruptly introducing a nuclear-capable stand-off missile into a tense situation. These limitations would detract from an air-delivered option's ability to assure the Baltic Allies of NATO's resolve. A better choice for a timely deterrent would be to re-commission the Nuclear Tomahawk Land Attack Cruise Missile (TLAM-N) and deploy it on a surface ship.

K. TLAM-N

Unlike land and air forces, the use of naval power for diplomatic messaging, and the projection of influence abroad, has a long history. Warships are not just military instruments but representatives of the sovereign powers of their respective nations. They have been used throughout history to signal resolve and apply coercive pressure on adversaries up to, and including, engaging in armed combat. If called upon, they are capable military instruments in their own right, and therefore they bring a messaging capability to any given scenario that aircraft and land armies cannot. Naval diplomacy's objective "is political influence, and the target is the minds and perceptions of policy-makers in hostile and friendly Powers." To achieve this effect, warships legally operate in a persistent and visible fashion in international seas, and in the territorial waters of allies, without challenge or debate.¹⁵¹ Additionally, unlike submarines, which share some of the aforementioned restrictive messaging characteristics of military aircraft, surface ships are meant to be visible to all—ally and adversary—and project presence. Therefore, placing a nuclear-armed missile on a warship is a means of marrying a formidable weapon to a flexible platform that can present a capable military threat to the enemy, and that can perform the role of strategic messenger. Despite the descriptive names given to low-yield NSNW, the use of any size or type of nuclear weapon would be a strategic decision. Therefore, basing a nuclear-armed missile on a platform that is adept at strategic messaging would be an advantage.

¹⁵¹ J. J. Widen, "Naval Diplomacy – A Theoretical Approach," *Diplomacy & Statecraft*, no. 22 (December 6, 2011), <http://www.tandfonline.com/doi/pdf/10.1080/09592296.2011.625830>

Another advantage of placing a nuclear-armed missile on a surface combatant is that it would fulfill the U.S. Navy's vision of a future strategy called "distributed lethality." Three leading American Admirals developed this concept, and its premise is that offensive strike capability should be moved from the aircraft carriers and "distributed" among the many smaller surface ships—notably the Arleigh Burke destroyers.¹⁵² This action would spread the Center Of Gravity (COG) away from a single ship in the battle group (the carrier) and force the enemy to target the various smaller combatants. Additionally, this concept would give smaller ships a bigger role in the battle space.¹⁵³ This increased importance is precisely what the Arleigh Burke Class destroyers forward deployed to Europe are already doing with their Ballistic Missile Defense role, and with their independent operations in the Baltic Sea, the Black Sea, and the eastern Mediterranean Sea.¹⁵⁴ Consequently, this new "distributed lethality" concept, while originally envisioned for the Pacific region, would fit flawlessly into U.S. Navy operations in Europe, and the addition of a nuclear-armed cruise missile would be the ultimate realization of this visionary concept.

When deployed on a surface vessel, the TLAM-N would fit the requirements of a sound deterrent completely, and it should be considered as the first option in adapting NATO's extended nuclear deterrent to the Russian threat. Apart from its incorporation into the naval-diplomatic paradigm, the TLAM-N would offer some other distinct advantages over competing options, the first being the fact that it is a mature weapons system. Despite reports of its retirement in 2010,¹⁵⁵ the TLAM-N is an early version of the conventional-warhead TLAM series of weapons that are still currently in service.¹⁵⁶

¹⁵² Thomas Rowden, Peter Gumataotao, and Peter Fanta. "Distributed Lethality." *Proceedings Magazine*, no.141 (January 2015). Assessed 25 February 2017. <https://www.usni.org/magazines/proceedings/2015-01/distributed-lethality>.

¹⁵³ Ibid.

¹⁵⁴ "Navy Names Forward Deployed Ships to Rota, Spain." U.S. Navy, 16 February 2012, Accessed February 25, 2017, http://www.navy.mil/SUBMIT/display.asp?story_id=65393.

¹⁵⁵ Department of Defense, *Nuclear Posture Review Report* (Washington, DC: Department of Defense, April 2010), Last Accessed 31JAN17, https://www.defense.gov/Portals/1/features/defenseReviews/NPR/2010_Nuclear_Posture_Review_Report.pdf.

¹⁵⁶ "Tomahawk Variants," Last accessed on February 27, 2014. <https://missilethreat.csis.org/missile/tomahawk/>

While bringing the TLAM-N back into service aboard a surface vessel would require some updates, it would not require redesigning a physics package and the certification process that would accompany such an effort.¹⁵⁷ Another advantage of the TLAM-N is that it can reach its target without the use of space-based positioning services—its Inertial Navigation System, which includes DSMAC and TERCOM capabilities, would ensure that it would be effective in a full-scale conflict with an advanced adversary that could deny access to the Global Positioning System (GPS).¹⁵⁸

The final advantage TLAM-N has in meeting the requirement for a timely solution to this issue is that it would bypass much of the political gridlock that would accompany the addition of a ground-based nuclear weapon in Europe. Involving other Alliance members in the hosting or employment of a new nuclear weapons system would be a long process full of political debate; however, the TLAM-N would be a “U.S.-only” solution that would avoid the need for a prolonged political debate with regard to hosting these weapons.¹⁵⁹ Surely, shore sites would have to be identified for storage of these weapons when not needed aboard ship, but this would be an easier problem to solve than to install a launch platform on European Allied territory. If absolutely necessary, these weapons could be stored in the United States when not operationally deployed, although this would be sub-optimal.

Although the TLAM-N would offer a timely and effective solution to NATO’s regional deterrence requirement in the Baltic, it would not be a perfect solution. The first problem with the TLAM-N is the size of its warhead. It carries a 200-kiloton W80 warhead with a published yield that is too powerful to proportionally respond to a

¹⁵⁷ Sandy Winnefeld and James N. Miller, “Bring Back the Nuclear Tomahawks,” *Proceedings Magazine*, no. 143 (May 2017), <https://www.usni.org/magazines/proceedings/2017-05/bring-back-nuclear-tomahawks>.

¹⁵⁸ “Tomahawk Cruise Missile,” United States Navy Fact File, August 14, 2014, http://www.navy.mil/navydata/fact_display.asp?cid=2200&tid=1300&ct=2 ; DSMAC (Digital Scene Matching Area Correlation) and TERCOM (Terrain Contour Matching) are methods of matching Radar and Electro-Optical images taken from the TLAM to an onboard library in order to fix the missile’s position. These navigation methods do not require GPS and difficult to jam.

¹⁵⁹ Winnefeld and Miller, “Bring Back the Nuclear Tomahawks.”

Russian sub-kiloton strike.¹⁶⁰ It might be possible to modify the yield of the W80; however, this discussion is beyond the scope of this thesis. Another problem the TLAM-N presents is that it has poor “coupling and burden sharing” characteristics. The TLAM-N is an American weapon system, and while this would provide an advantage in deploying the system in a timely manner, it would not bind the various NATO allies together the same way the B-61 does—with U.S. weapons being hosted and employed by Allies in the event of war. Finally, the incorporation of the TLAM-N into the U.S. Navy assets deployed to Europe would tie these assets to a nuclear deterrent mission, which would complicate the ability of naval planners to utilize the vast array of other capabilities that these ships bring to the theater. In view of these issues, the TLAM-N deployed on surface vessels should be considered a rapid and near-term solution for the deterrence problem in the Baltic, but in the long-term the TLAM-N should constitute simply one of a multiplicity of delivery options that includes the B-61 bombs already in theater, and a future short-range ballistic missile (SRBM) delivery capability.

L. SRBM

A valuable addition to the U.S. extended nuclear deterrent for NATO would be a ground-based short-range (less than 500km) dual-capable ballistic missile system because it could be designed and built to meet all the aforementioned desirable attributes of such a deterrent; however, such a system would have to be built from scratch, and the time required to do so is this option’s principal drawback. A ballistic missile, from the view of a delivery system, has many desirable attributes. A ballistic missile requires no escort to provide SEAD and does not place a human pilot in danger. Furthermore, a ballistic missile could reach targets deep behind enemy lines, and it would be difficult to intercept. The United States and NATO have invested large sums of money and resources in countering the ballistic missile threat from the Middle East. If NATO acquired a nuclear-armed SRBM, Russia might choose to increase its already substantial investments in BMD, or cede an advantage to NATO. Such a large expenditure might force Moscow to

¹⁶⁰ “Tomahawk Variants,” Last accessed on February 27, 2014.
<https://missilethreat.csis.org/missile/tomahawk/>

cut back some of its other military investments, which could bring NATO the added benefit of limiting Russia's ability to apply military force abroad.

Fortunately, a conventional SRBM system is under development that could be modified for a nuclear deterrent mission. This system, called "deepstrike," will "integrate into the M270 MLRS and M142 HIMARS rocket launchers"¹⁶¹ currently used by the U.S. Army and U.S. Marine Corps. This system will have a range of 499 km, within the limits of the INF Treaty, and it will be able to hit moving targets, including ships. This weapons system, even in its current conventional role, is ideal for the Baltic region. It could easily reach into Russia from the Baltic states, with St. Petersburg in range from Estonia; and it could be used to create an anti-access area denial (A2AD) problem for the Russian fleet by closing the Gulf of Finland and the approaches to the Danish Straits to Moscow's naval forces.

This SRBM system, if modified to become a dual-capable platform, would be a useful regional nuclear deterrent. Besides being a capable weapon, an SRBM such as "deepstrike" deployed in the Baltic states would politically "couple" these allies to NATO's nuclear deterrent, and this missile would provide a powerful assurance factor because it would be based inside frontline Allied territory. There would be political issues related to basing such a deterrent close to Russia. Some NATO countries would probably oppose violating the NATO-Russia Founding Act, which prohibits such a move. According to the Founding Act,

The member States of NATO reiterate that they have no intention, no plan and no reason to deploy nuclear weapons on the territory of new members, nor any need to change any aspect of NATO's nuclear posture or nuclear policy—and do not foresee any future need to do so. This subsumes the fact that NATO has decided that it has no intention, no plan, and no reason to establish nuclear weapon storage sites on the territory of those members, whether through the construction of new nuclear storage facilities or the adaptation of old nuclear storage facilities. Nuclear storage sites are understood to be facilities specifically designed for the stationing of nuclear weapons, and include all types of hardened above or below

¹⁶¹ "Deepstrike Missile: Double Combat Power At a Fraction of the Cost" Raytheon, Accessed October 3, 2017, http://www.raytheon.com/capabilities/products/deepstrike_long_range_precision_fires/; The M270 Multiple Launch Rocket System and the M142 High Mobility Artillery Rocket System are current U.S. Army and U.S. Marine Corps artillery systems.

ground facilities (storage bunkers or vaults) designed for storing nuclear weapons.¹⁶²

However, other Allies might point to the NATO consensus that Moscow has already violated the NATO-Russia Founding Act and other accords with its aggression in Ukraine. If basing the actual nuclear warheads in Eastern Europe would be too great an obstacle to overcome, these warheads might be kept in reserve in other NATO European countries, and the missile system could be forward deployed to the Baltic states in its conventional role, with the nuclear rounds designed to be moved forward and mated with the weapons system in the case of imminent hostilities.

¹⁶² NATO, “Founding Act on Mutual Relations, Cooperation and Security between NATO and the Russian Federation signed in Paris, France,” (May 27 1997), Accessed 25 September 2017, Section IV para 1, http://www.nato.int/cps/en/natolive/official_texts_25468.htm.

IV. CONCLUSION

Given Moscow's revanchist foreign policy, its willingness to use military force to achieve its goals, and its annexation of Crimea in 2014, the security threat to NATO's Allies in the Baltic region has become acute. The Alliance must find a means to deter Moscow from attempting a similar action in the former Soviet Baltic republics that are now NATO member states. This thesis has identified regional nuclear deterrence as the best means of addressing this threat, and it has answered the question, "How, and to what extent, would the addition of U.S. sea- and ground-based non-strategic nuclear weapons strengthen the Alliance's deterrence and defense posture in Europe?" Through a qualitative analysis of NATO's nuclear deterrence posture in Europe in the light of new challenges, including capable Russian air defenses, this thesis has found that the addition of a nuclear capable cruise missile, such as the Nuclear Tomahawk Land Attack Missile (TLAM-N), deployed on surface ships would be an effective short-term solution to this problem and would be consistent with the U.S. Navy's "distributed lethality" concept for surface ships. Moreover, to enhance the Alliance's long-term regional deterrent, a short-range ground-based dual-capable ballistic missile could usefully complement the TLAM-N.

Russia has condemned NATO's expansion in Central and Eastern Europe, and has responded to the spread of liberal-democracy into its "near abroad" in Georgia and Ukraine with force, disrupting the peaceful coexistence between Moscow and the West that prevailed from the fall of European Communism in 1989–1991 until approximately 2007. Moscow has, moreover, resisted what it considers a blatant disregard for its position against regime change in nations such as Georgia and Ukraine. From Russia's perspective these events amount to a gradual encroachment into its historic sphere of influence, which threatens its security and undermines its position in international politics. This critical view of the West's perceived actions against Russian interests has resulted in Moscow assuming a position from which it intends to challenge Western, specifically American, dominance of the international system. Furthermore, part of this policy shift includes the use of military force in asserting Russian influence in the former

Soviet space, which has negatively affected Georgia and Ukraine. Russia's challenges to international norms that have been in effect since the conclusion of the U.N. Charter in 1945 and the Helsinki Final Act in 1975 are particularly threatening to NATO because it now shares more extensive borders with Russia than it did during the Cold War.

Because of this new dynamic, Russia's actions in Ukraine, specifically its illegal annexation of Crimea and its support for ethnic Russian insurgency in Donbas, are particularly threatening to NATO's Baltic member states. These Baltic Allies share borders with Russia, and they have only a limited conventional military capability that is relatively insignificant compared to the Russian forces deployed adjacent to their frontiers. Furthermore, the large ethnic Russian minorities in two of these states could offer Russia a pretext for intervention, just as intervention to preserve ethnic Russian interests served as an excuse for the seizure of Crimea. Because Estonia, Latvia, and Lithuania are NATO members, an incursion by Russia into these nations would trigger Article 5 of the North Atlantic Treaty and elicit a response from the entire Alliance. This would risk large-scale war with a nuclear-armed adversary—a situation to be avoided if possible. To dissuade Russia from attempting to violate the territorial integrity of the Baltic NATO member states an effective deterrent is essential. However, a conventional military solution would be ill-advised because a buildup of a large land force close to Russia's border could increase tensions and lead to war. Additionally, with Europe experiencing a prolonged economic crisis any major increase in spending on defense is unlikely. Therefore, a deterrent to Moscow's aggression must be found without resorting to large expenditures or massing troops on the Russian frontier.

Nuclear deterrence has been a fundamental component of NATO's defense posture since the founding of the Alliance in 1949. The ultimate guarantee of NATO's defense remains America's strategic nuclear deterrent; however, when addressing a limited conflict, such as a possible Russian incursion in one or more of the Baltic Allies, a U.S. strategic nuclear response may not be seen as credible by Russia or the NATO Allies. A limited nuclear deterrent is called for in a situation such as this, where Russian doctrine calls for the discriminate use of nuclear weapons to "de-escalate" the situation. NATO requires options to match Russia's sub-strategic nuclear capabilities in certain

ways in order to deter its use of nuclear weapons and prevent Moscow from attempting such a risky endeavor. Today, the extended nuclear deterrent forward deployed in Europe by the United States to meet such a requirement consists of only a small number of B-61 nuclear gravity bombs that could be employed by Dual Capable Aircraft after they have penetrated hostile airspace—a difficult task considering Russia’s modern air defense systems. By reconfiguring the American extended nuclear deterrence posture in Europe, to include surface ship deployed nuclear-armed cruise missiles (TLAM-N) and ground-based, short range, INF Treaty-compliant, ballistic missiles capable of delivering a tailored non-strategic nuclear payload, NATO can re-invigorate its nuclear deterrence capability, secure its frontier with Russia, and assure its new members in Eastern Europe that the Alliance is able and willing to provide for their security.

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF REFERENCES

- Acton, James M. "Extended Deterrence and Communicating Resolve." *Strategic Insights* no. 8 (December 2009).
- Adamsky, Dmitry. "If War Comes Tomorrow: Russian Thinking About 'Regional Nuclear Deterrence.'" *The Journal of Slavic Military Studies*, no. 27 (2014). 163–188. doi: 10.1080/13518046.2014.874852.
- AMCOM. "Lance." U.S. Army Aviation and Missile Life Cycle Management Command. Assessed 02 February 2017.
<https://history.redstone.army.mil/miss-lance.html>.
- Arkin, William M. "America's Nuclear Weapons in Europe Are the Nuclear Elephant in the Room." VICE NEWS (March 31, 2016).
<https://news.vice.com/article/american-nuclear-weapons-in-belgium-kleine-broegel>
- Barabanov, Mikhail. "Changing the Force and Moving Forward After Georgia." In *Brothers Armed: Military Aspects of the Crisis in Ukraine*, 2nd ed, edited by Colby Howard and Ruslan Pukhov, 91–123. Minneapolis : East View Press, 2015.
- Barabanov, Mikhail. "Hard Lessons Learned," In *Brothers Armed: Military Aspects of the Crisis in Ukraine*, 2nd ed, edited by Colby Howard and Ruslan Pukhov, 74–90. Minneapolis : East View Press, 2015.
- Bush, George H. W. "Address to the Nation on Reducing United States and Soviet Nuclear Weapons" Speech, Washington, DC, September 27, 1991. *The American Presidency Project*.
<http://www.presidency.ucsb.edu/ws/index.php?pid=20035>.
- Bush, George H. W., and Brent Scowcroft. *A World Transformed*. New York: Knopf, 1998.
- Delpech, Thérèse. *Nuclear Deterrence in the 21st Century: Lessons From the Cold War for a New Era of Strategic Piracy*. Santa Monica, CA: RAND, 2012.
- Dougherty, J. E., and R. J. Hanks. *The European Political Environment and NATO Maritime Strategy: The Future Role of Naval Forces in the Forward Defense of Western Europe*. Vol 1. Cambridge MA: Institute for Foreign Policy Analysis Inc, 1985. Access Number: ADA159284.
<http://www.dtic.mil/get-tr-doc/pdf?AD=ADA159284>.

- Durkalec, Jacek, and Matthew Kroenig. "NATO's Nuclear Deterrence: Closing Credibility Gaps." *The Polish Quarterly of International Affairs*, no. 1 (2016): 37–50.
- Federal Ministry of Defence. *Air Power Development Strategy: 2016*. December 2015.
<https://www.bmvg.de/resource/resource/UIRvcjZYSW1RcEVHaUd4cklzQU4yMzFYNNl6UGxhbm1vNGx0VVVuZlIvaEtMR2NPaHZTcEhxMnhlcVJwV3I1YjJNL1BIakowSlpXSXZhR0w4YytleMtra0hZMFA3RWxIVmk5SlRSbzRrRTg9/20160511-MilitaerischeLuftfahrt-Screen-ENG-final.pdf>
- Garrett, Stephen A. *NATO Deterrence and Defense After the INF Treaty*, Naval Postgraduate School (Monterey California: 1989).
<http://hdl.handle.net/10945/29008>.
- Gvosdev, Nikolas K. "Obama's Russia Policy: A Post Mortem and Lessons for the Next President." *Russia Matters*, Harvard Kennedy School Belfer Center. October 26, 2016. Assessed May 18, 2017.
<https://www.russiamatters.org/analysis/obamas-russia-policy-post-mortem-and-lessons-next-president>.
- Hopkins, J. C., and Sheldon A. Goldberg. *The Development of Strategic Air Command, 1946–1986* (Offutt Air Force Base, NE: Office of the Historian, Headquarters, Strategic Air Command, September 1, 1986).
<https://babel.hathitrust.org/cgi/pt?id=mdp.39015012025121;view=1up;seq=15>
- House of Commons, *Select Committee on Defence Fourteenth Report*. (London, October 2000).
<https://publications.parliament.uk/pa/cm199900/cmselect/cmdfence/347/34702.htm>
- Hubbard, Kenneth. *Dropping Britain's First H-Bomb: The Story of Operation Grapple 1957*. Penn and Sword: October 2008.
- Johnson, Dave. "Nuclear Weapons in Russia's Approach to Conflict." *Fondation Pour la Recherche Stratégique*, no.6 (November 2016). ISBN: 978–2–911101-93-9
- Kennan, George. Telegram to U.S. Secretary of State (the "long telegram"). February 22, 1946. (National Security Archive: George Washington University, 1946). <http://nsarchive2.gwu.edu/coldwar/documents/episode-1/kennan.htm>.

- Kroenig, Matthew. *Toward a More Flexible NATO Nuclear Posture: Developing a Response to a Russian Nuclear De-Escalation Strike*. Atlantic Council: Brent Scowcroft Center on International Security (November 2016).
https://issuu.com/atlanticcouncil/docs/toward_a_more_flexible_nato_nuclear.
- Koch, Susan J. *The Presidential Nuclear Initiatives of 1991–1992*. Washington, DC: National Defense University Press, September 2012.
http://ndupress.ndu.edu/Portals/68/Documents/casestudies/CSWMD_CaseStudy-5.pdf.
- Kopp, Carlo. “Tomahawk Cruise Missile Variants: BGM/RGM/AGM-109 Tomahawk/TASM/TLAM/GCLM/MRASM.” *Technical Report APA-TR-2005–0702*. Accessed February 14, 2014.
<http://www.ausairpower.net/Tomahawk-Subtypes.html>.
- Lavrov, Sergey. “Russia’s Foreign Policy: Historical Background.” *The Ministry of Foreign Affairs of the Russian Federation*. March 3, 2016. No 408–03-03-2016.
- Legge, J. Michael. *Theater Nuclear Weapons and the NATO Strategy of Flexible Response*, R-2964-FF (Santa Monica, CA: RAND, April 1983).
- Lo, Bobo. *Russia and the New World Disorder*. Washington, DC: Brookings Institution Press, 2015.
- Miller, Eric A. “Global Strike Capabilities: The Ballistic Missile Option.” *Astropolitics*, no. 2 (December 2004): 1–31.
<http://dx.doi.org/10.1080/14777620490444722>.
- Missile Threat. “Tomahawk Variants.” Accessed February 27, 2014.
<http://missilethreat.com/missiles/tomahawk-variants/?country=united-states#united-states>.
- Murdock, Clark, Samuel J. Brannen, Thomas Karako, Angela Weaver, Barry Blechman, Elbridge Colby, Keith B. Payne, Russell Rumbaugh, and Thomas Scheber. *Project Atom A Competitive Strategies Approach to Defining U.S. Nuclear Strategy and Posture for 2025–2050*. Center for Strategic and International Studies (2015). Accessed October 17, 2017. Table 1, Page 20.
http://csis.org/files/publication/150601_Murdock_ProjectAtom_Web.pdf.
- Nalbandov, Robert. *Not by Bread Alone: Russian Foreign Policy under Putin* (Lincoln: University of Nebraska Press, 2016).

- NATO. The Alliance's New Strategic Concept: Agreed by the Heads of State and Government Participating in the Meeting of the North Atlantic Council 07–08 November 1991. Last Updated 26 August 2010.
http://www.nato.int/cps/sl/natohq/official_texts_23847.htm
- . The Alliance's Strategic Concept: Approved by the Heads of State and Government Participating in the Meeting of the North Atlantic Council in Washington, DC, 24 April 1999. Last Updated 25 June 2009.
http://www.nato.int/cps/en/natohq/official_texts_27433.htm.
- . *Deterrence and Defense Posture Review: Issued on 20 May 2012*. Accessed March 5, 2017.
http://www.nato.int/cps/en/natohq/official_texts_87597.htm.
- . "Founding Act on Mutual Relations, Cooperation and Security between NATO and the Russian Federation signed in Paris, France." (May 27 1997). Accessed September 25, 2017.
http://www.nato.int/cps/en/natolive/official_texts_25468.htm
- . "NATO's Enhanced Forward Presence." *NATO Factsheet*. (May 2017). Accessed September 26, 2017.
http://www.nato.int/nato_static_fl2014/assets/pdf/pdf_2017_05/1705-factsheet-efp.pdf.
- . "Relations With Russia: Milestones In Relations." Last Updated 20 December 2016. http://www.nato.int/cps/en/natolive/topics_50090.htm.
- . "Securing the Nordic-Baltic Region." *NATO Review Magazine*, Accessed September 27, 2017. <http://www.nato.int/docu/review/2016/Also-in-2016/security-baltic-defense-nato/EN/index.htm>
- . Strategic Concept For the Defence and Security of The Members of the North Atlantic Treaty Organization: Adopted by the Heads of State and Government in Lisbon 19–20 November 2010. Accessed March 5, 2017.
http://www.nato.int/nato_static_fl2014/assets/pdf/pdf_publications/20120214_strategic-concept-2010-eng.pdf.
- . *The Strategic Concept for Defense of the North Atlantic Area: MC3—19.10.1949*. Accessed April 27, 2017.
<http://www.nato.int/archives/strategy.htm>.
- . Wales Summit Declaration: Issued by the Heads of State and Government participating in the meeting of the North Atlantic Council in Wales. 05 Sep 2014. (last updated 26 Sep 2016).
http://www.nato.int/cps/en/natohq/official_texts_112964.htm.

- . Warsaw Summit Communiqué: Issued by the Heads of State and Government participating in the meeting of the North Atlantic Council in Warsaw 8–9 July 2016. 09 JUL 2016 (last updated: 03 Aug 2016). http://www.nato.int/cps/en/natohq/official_texts_133169.htm#piracy
- Norris, Robert S., and Hans M. Kristensen. “U.S. Tactical Nuclear Weapons in Europe, 2011.” *Bulletin of the Atomic Scientists* Vol. 67, 64–73. DOI: 10.1177/0096340210393931.
- Obama, Barack. “President Obama’s Speech in Prague.” U.S. Embassy in The Czech Republic. (April 5, 2009). Accessed March 6, 2017. <https://cz.usembassy.gov/our-relationship/president-obamas-speech-in-prague/>.
- Powers, Rod. “U.S. Army Military Organization From Squad to Corps: A Guide to Each ‘Building Block’ in the Modern Army.” *The Balance* (September 8, 2016). <https://www.thebalance.com/u-s-army-military-organization-from-squad-to-corps-4053660>.
- Putin, Vladimir, Address by President of the Russian Federation. March 18, 2014. (The Kremlin, Moscow). Paragraph 10. <http://eng.kremlin.ru/news/6889>.
- Raytheon. “Deepstrike Missile: Double Combat Power At a Fraction of the Cost.” Raytheon. Accessed October 3, 2017. http://www.raytheon.com/capabilities/products/deepstrike_long_range_precision_fires/
- Roberts, Brad. *The Case for U.S. Nuclear Weapons in the 21st Century*. Stanford, CA: Stanford University Press: 2016.
- Rowden, Thomas, Peter Gumataotao, and Peter Fanta. “Distributed Lethality.” *Proceedings Magazine*, no.141 (January 2015). Accessed 25 February 2017. <https://www.usni.org/magazines/proceedings/2015-01/distributed-lethality>.
- Secretary of Defense Task Force on DOD Nuclear Weapons Management. *Phase II: Review of the DOD Nuclear Mission Report* (Washington, DC: Department of Defense, December 2008). Accessed January 31, 2017. <https://www.defense.gov/Portals/1/Documents/pubs/PhaseIIReportFinal.pdf>.
- Shlapak, David A., and Michael Johnson. “*Reinforcing Deterrence on NATO’s Eastern Flank: Wargaming the Defense of the Baltics*.” Santa Monica, CA: RAND Corporation. 2016. doi:10.7249/RR1253.
- Tsygankov, Andrei P. *The Strong State in Russia: Development and Crisis*. Oxford University Press, 2014.

- United Kingdom Ministry of Defense. “UK Nuclear Deterrence: What You Need to Know.” Ministry of Defence. Last Updated 24 March 2016. Accessed March 5, 2017. <https://www.gov.uk/government/publications/uk-nuclear-deterrence-factsheet/uk-nuclear-deterrence-what-you-need-to-know>.
- United States Department of Defense. *Report of the Defense Science Board Task Force on Nuclear Capabilities: Report Summary*. Washington, DC: Office of the Under Secretary of Defense For Acquisition, Technology, and Logistics (2006).
- . “Navy Names Forward Deployed Ships to Rota, Spain.” U.S. Navy. February 16, 2012. Accessed February 25, 2017. http://www.navy.mil/SUBMIT/display.asp?story_id=65393
- . *Nuclear Posture Review Report*. Washington, DC: Department of Defense, April 2010. Accessed January 31, 2017. https://www.defense.gov/Portals/1/features/defenseReviews/NPR/2010_Nuclear_Posture_Review_Report.pdf.
- United States Navy. “Tomahawk Cruise Missile.” United States Navy Fact File (August 14, 2014). http://www.navy.mil/navydata/fact_display.asp?cid=2200&tid=1300&ct=2.
- Watts, Barry D. *Nuclear-Conventional Firebreaks And the Nuclear Taboo*. Washington, DC: Center for Strategic and Budgetary Assessments, 2013. <http://csbaonline.org/uploads/documents/Nuclear-Conventional-Firebreaks-Report1.pdf>
- Widen, J. J. “Naval Diplomacy—A Theoretical Approach.” *Diplomacy & Statecraft*. no. 22 (December 6, 2011). 715–733. <http://www.tandfonline.com/doi/pdf/10.1080/09592296.2011.625830>
- Winnefeld, Sandy and James N. Miller. “Bring Back the Nuclear Tomahawks.” *Proceedings Magazine*, no. 143 (May 2017). <https://www.usni.org/magazines/proceedings/2017-05/bring-back-nuclear-tomahawks>.
- Woolf, Amy. *Nonstrategic Nuclear Weapons*. CRS Report No. RL32572. Washington, DC: Congressional Research Service, 2017.
- Wörner, Manfred. *Final Communiqué: The Nuclear Planning Group (NPG) of the North Atlantic Alliance*. Taormina, Italy: NATO, 17-18 October, 1991. Updated October 27, 2000. <http://www.nato.int/docu/comm/49-95/c911018a.htm>.
- Yost, David S. “Assurance and U.S. Extended Deterrence in NATO.” *International Affairs*, no. 85 (2009) 755–780.

- . “France’s New Nuclear Doctrine.” *International Affairs*, no. 82 (2006). 701–721.
- . *NATO’s Balancing Act* (Washington, DC: United States Institute of Peace Press, 2014).
- . *NATO Transformed: The Alliance’s New Roles in International Security* (Washington, DC: United States Institute of Peace Press, 1998).
- . “New Approaches to Deterrence in Britain, France, and the United States,” *International Affairs*, no. 81 (2005) 83–114.
- . “The U.S. Debate on NATO Nuclear Deterrence.” *International Affairs*, no. 84 (2011), 1401–1438.
- Zysk, Katarzyna. “Nonstrategic Nuclear Weapons In Russia’s Evolving Military Doctrine.” *Bulletin of the Atomic Scientists*, no. 73 (2017). 322–327. doi: 10.1080/00963402.2017.1362908

THIS PAGE INTENTIONALLY LEFT BLANK

INITIAL DISTRIBUTION LIST

1. Defense Technical Information Center
Ft. Belvoir, Virginia
2. Dudley Knox Library
Naval Postgraduate School
Monterey, California